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Research Article

Revision of Afrotropical *Suragina* Walker, 1859 (Diptera, Athericidae)

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Abstract

Suragina Walker, 1859 of the Afrotropical Region are revised. Nineteen species are recognised and treated within. The species *Suragina bilobata* Muller, **sp. nov.**, *S. copelandi* Muller, **sp. nov.**, *S. freidbergi* Muller, **sp. nov.**, *S. liberiaensis* Muller, **sp. nov.**, S. *malavaensis* Muller, **sp. nov.**, *S. mulanjeensis* Muller, **sp. nov.**, *S. semiobscura* Muller, **sp. nov.** and *S. zombaensis* Muller, **sp. nov.** are described as new. A key to the known males and females of 17 Afrotropical species, excluding *S. disciclara* (Speiser, 1914) and *S. pilitarsis* (Lindner, 1925), is provided. Additionally, *S. bivittata* (Bezzi, 1926) is designated as junior synonym of *S. binominata* (Bequaert, 1921). Similarly, *S. varicolor* (Brunetti, 1929) is designated as junior synonym of *Suragina bezzii* (Curran, 1928). The distribution of Afrotropical *Suragina* is expanded with six new distribution records of three species: *S. agramma* (Bezzi, 1926): Kenya and Malawi; *S. bezzii*: Burundi, Kenya, and Uganda; *S. binominata*: Malawi.

Key words: Distribution, identification key, systematics, taxonomy, Water Snipe Flies

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Introduction

Suragina Walker, 1859 is a haematophagous genus of athericine water snipe flies. The genus has a cosmopolitan distribution, occurring in all regions except the Antarctic. At present, there are 57 recognised species of *Suragina*, including those treated in this paper. The species are distributed as follows: the Oriental Region has 27 species, the Afrotropical Region 19, the Neotropical Region five, the Australasian Region three, the Palaearctic Region two, and the Nearctic Region just one (Yang et al. 2016).

While *Suragina* has not been shown to be a vector of bloodborne diseases in general, it may be considered of some limited veterinary importance as it has been observed and recorded feeding on several species of mammals and avians (Stuckenberg 2000). Knab (1912: 108, 110) noted *Suragina longipes* (Bellardi, 1861) feeding on humans and horses in Mexico, stating that it is "...a fierce biter and blood-sucker" and that the observer described the bite as "...exceedingly painful and caused more alarm among the horses in my outfit than any other fly". It can be inferred that this kind of biting behaviour could lead to irritation and stress in livestock, which in turn could potentially lead to similar weight loss in livestock as

caused by Tabanidae bites (Perich et al. 1986; Desquesnes and Lamine Dia 2004; Baldachhino et al. 2014). Stuckenberg (2000) listed and expanded on records provided by Nagatomi (1962), including records for *Suragina satsumana* (Matsumura, 1916) on cattle in Japan, and *Suragina bivittata* (Bezzi, 1926) – herein designated as junior synonym of *Suragina binominata* (Bequaert, 1921) – on Giant Eagle Owl, *Bubo lacteus* (Temminck, 1820) in South Africa (Stuckenberg and Young 1973).

Afrotropical *Suragina* are typically found in forested habitats, but some species of *Suragina*, such as *Suragina monogramma* (Bezzi, 1926), are known to occur in riverine woodland along mature, slow-flowing rivers (pers. obs.; Stuckenberg 2000).

Athericidae has, in recent years, had some revisionary work done, with Muller et al. (2023) revising the *Atrichops* Verrall, 1909 of the Afrotropical Region, Yang et al. (2016) describing seven new species of *Suragina* from the Oriental Region and Woodley (2007) describing a new species of *Dasyomma* Macquart, 1840 from Chile. Additionally, González et al. (2019) produced a catalogue of Neotropical and Andean Athericidae.

Stuckenberg (2000) noted that the generic status of the Neotropical "*Suragina*-like athericids" requires reassessment. This should be a future focus, as fresh samples are needed from as many Regions as possible to elucidate the phylogenetic relationships among the species within the genus.

This study revises the *Suragina* of the Afrotropical Region, describing eight new species, and designating two as junior synonyms. An identification key to the males and females of all Afrotropical species, except for *Suragina disciclara* (Speiser, 1914) and *S. pilitarsis* (Lindner, 1925), is provided (see remarks of both species), along with distribution maps (Figs 88, 89) for all species.

Materials and methods

Preparation methods

Morphological terminology follows that of Cumming and Wood (2017). Terminalia were macerated in heated 10% KOH for approximately 20 minutes or until clear, and examined using a Novel compound microscope with an attached Canon 850D DSLR camera. The same camera, with a 105 mm lens and extension tubes, was used for habitus photos of specimens. Specimen photos were stacked using Helicon Focus 7. Photographic images, illustrations of terminalia, as well as plates were prepared using Adobe Photoshop CC 2024 and Adobe Illustrator CC 2024. The species distribution maps (Figs 88, 89) were generated using QGIS 3.28.6 and Africa Terrestrial Ecosystems (Sayre 2023).

Material citations and collections

Any additional information added to the materials examined sections is placed within square brackets. Citations for type specimens are interpreted from the specimen labels, and images of type labels are provided where possible.

The following collection codens are used:

AMNH American Museum of Natural History, New York, USA
BMSA National Museum, Bloemfontein, South Africa
CSCA California State Collection of Arthropods, Sacramento, USA

ICIPE International Centre of Insect Physiology and Ecology, Nairobi, Kenya
NHMUK Natural History Museum, London, United Kingdom
MLUH Zentralmagazin Naturwissenschaftlicher Sammlungen (ZNS), Martin-Luther Universität Halle-Wittenberg, Halle, Germany
MNHN Muséum national d'Histoire naturelle, Paris, France
NMSA KwaZulu-Natal Museum, Pietermaritzburg, South Africa
PBZT Parc Botanique et Zoologique de Tsimbazaza, Antananarivo, Madagascar
SAMC Iziko South African Museum, Cape Town, South Africa

Taxonomy

Suragina Walker, 1859

Suragina Walker, 1859: 110.

Type species. *Suragina illucens* Walker, 1859 by monotypy.

Diagnosis. *Suragina* is most similar to the genus *Atrichops* with which it shares elongated legs and the hind coxa with a stout apical point or spine-like projection on its anteroventral surface. Similarly, *Atrichops* is also haematophagous, with well-developed mandibles. However, *Atrichops* has a knoblike proepimeral process (somewhat reduced in Afrotropical species) that is absent in *Suragina*. Additionally, *Suragina* has its frons usually contrasting velvety-black on the upper half and silvery-grey on the lower half (especially evident in ♀), whereas the frons in *Atrichops* is more concolorous. The antennal bases are comparatively widely separated in *Suragina*, and close together in *Atrichops*. *Suragina* typically has a tibial spur ratio of 0:2:2 (1:2:2 in some specimens of *S. binominata* (Bequaert, 1921)), while *Atrichops* has a ratio of 0:1:2. There is also a substantial difference in the morphology of the male terminalia, with *Suragina* having the gonostylus inserted apically and the parameral sheath simple apically, compared to *Atrichops* having the gonostylus inserted subapically, sometimes even medially on the gonocoxite (e.g. *Atrichops intermedius* Muller, 2023 *in* Muller et al. 2023) and the parameral sheath ending with outward projections. Woodley (2017: 887) provided a key to the known genera of Afrotropical Athericidae.

Key to the Afrotropical species of *Suragina* Walker (excluding *S. disciclara* and *S. pilitarsis*)

1 Scutum and pleura with ground colour mostly orange-yellow (e.g. Fig. 1), if scutum with prominent dark median vitta (e.g. Fig. 2) then pleura darker in colouration (Figs 14, 15) **2**
– Scutum and pleura with majority of surface brown to almost black (e.g. Figs 3, 6), limited orange-yellow colouration **8**
2 Notopleural area posterior to postpronotal lobe and anterior to transverse suture orange-yellow (e.g. Fig. 2), at most with a thin brown band along posterior edge of postpronotal lobe, no pruinosity in area **3**
– Notopleural area posterior to postpronotal lobe and anterior to transverse suture with a brownish marking on surface (e.g. Fig. 4), appearing bluish- to silver-grey pruinose in dorsal view, brown in lateral view (dependent on viewing angle) **5**

3 Scutum with a prominent dark median vitta (Fig. 2)..... .....***S. binominata* (Bequaert)** (in part, ♀)
– Scutum without a median vitta (Fig. 1).....**4**
4 Fore and hind tibiae dark brown to black; lateral margins of tergites 2–4 dark (Figs 16, 17).....***S. copelandi* Muller, sp. nov.**
– Fore and hind tibiae yellow to orange-yellow, some specimens with apical half of front tibia darker; lateral margins of tergites 2–4 concolorous with rest of abdomen or only lateral margin of tergite 2 a slightly darker colour (Figs 9, 10) .....***S. agramma* (Bezzi)**
5 Scutum with a prominent dark median vitta, sometimes with additional dark markings on pre- and postsutural lateral areas **6**
– Scutum at most with two feint dorsocentral bluish-grey pruinose vittae (e.g. Fig. 5).....**7**
6 Scutum with additional dark markings on pre- and postsutural lateral areas in addition to notopleural marking (Fig. 4); fore tibia dark brown to almost black .....***S. falsa* (Oldroyd)**
– Scutum without any additional pre- or postsutural dark markings apart from central vitta; fore and hind tibiae light brownish-yellow to orange-yellow (Figs 27, 28) ..... ***S. monogramma* (Bezzi)**
7 Wing stigma dark brown with similarly dark substigmal mark running down to base of cell m_3 (Fig. 48); prescutellar area orange-yellow without any pruinosity; Madagascan endemic .....***S. milloti* (Séguy)**
– Wing stigma light brown, with only some darker suffusions over posterior cells (Fig. 50); prescutellar area with bluish-grey pruinosity similar to that of notopleuron (Fig. 5); mainland Africa ..... ***S. mulanjeensis* Muller, sp. nov.**
8 Wing stigma dark brown with similarly dark, but irregularly shaped substigmal mark running down to base of cell m_3; at least apical third of wing with brown suffused appearance, area between substigmal mark and suffusion appearing to form a hyaline band (e.g. Figs 39, 45–47) **9**
– Wing stigma variable, darker substigmal mark present or absent, if present, then brown suffusion runs up to or near it, not visually forming a clear hyaline band (e.g. Figs 38, 54).....**12**
9 Antennal 1st flagellomere bilobate, c-shaped (Fig. 13a); Madagascan endemic.....***S. bilobata* Muller, sp. nov.**
– Antennal 1st flagellomere typical subreniform shape; mainland Africa...**10**
10 Upper occiput with a pair of well-developed dark markings that run down to occipital foramen (Fig. 7); mid femur dark brown, only yellow at extreme base and apex (Fig. 22); all abdominal tergites dark brown, without any posterior grey pruinose bands.....***S. liberiaensis* Muller, sp. nov.**
– Upper occiput with narrower dark markings, either subrectangular or subtriangular; mid femur yellow, at most brownish on extreme base; tergite 1 with subtriangular dark marking, appearance of other tergites variable..... **11**
11 Upper occiput with a pair of narrow subrectangular dark markings (Fig. 8); mid femur yellow (Figs 20, 21); abdominal tergites yellowish-brown to dark brown, tergite 1 with a subtriangular marking, tergite 2 in some specimens with a fenestrated appearance, at least tergites 3–5 with posterior grey pruinose bands.....***S. freidbergi* Muller, sp. nov.**
– Upper occiput with a subtriangular pair of well-developed dark markings (Fig. 6); mid femur yellow, at most with extreme base dark; abdomen with

orange-yellow appearance; elongated dark median and lateral markings on tergites 2 and 3, remaining tergites orange-yellow without external markings ..... ***S. malavaensis* Muller, sp. nov.**

12 Mid femur brown on at least two-thirds of surface, fore femur yellow on over two-thirds of surface **13**

– Fore and mid femora yellow, at most brown on extreme apex and base..... **14**

13 Wing with dark brown suffusion more pronounced on anterior half, lighter on posterior half (Fig. 53); postpronotal lobe pale yellow; fore femur yellow on at least basal half to two-thirds, remaining apical third to half dark brown ..... ***S. semiobscura* Muller, sp. nov.**

– Wing with brownish suffusion uniformly distributed over anterior and posterior half (Fig. 38); postpronotal lobe dark brown, at most with a slight orange-yellow colouration on lateral margin; fore femur dark brown on basal third or almost entirely yellow with only extreme apex and base brown..... ***S. bezzii* (Curran)**

14 All coxae orange-yellow; hind femur orange-yellow on majority of surface, with small anterior apical dark mark, hind tibia and tarsi orange-yellow; occiput with pair of narrow dark subtriangular markings; ♂ cercus orange-yellow (♀ unknown) ..... ***S. nigromaculata* (Brunetti)**

– Fore coxa variable, mid and hind coxae brown with some greyish pruinosity on at least anterior surface; hind femur with middle third with some degree of light infuscation to being blackish-brown, hind tibia and tarsi with some degree of overall infuscation; ♂♀ cercus darkened **15**

15 Antenna with 1st flagellomere brown (Figs 32, 33); postpronotal lobe and postalar callus pale orange-yellow, without pruinosity; at least tergites 1–5 with dark subtriangular medial markings; wing overall light brown suffused (Fig. 52) apparent darker suffused substigmal mark in ♂; Madagascan endemic ..... ***S. pauliani* (Stuckenberg)**

– Antenna with 1st flagellomere orange-yellow; postpronotal lobe orange-brown to brown with greyish pruinosity, or dark brown without pruinosity, postalar callus colour variable; abdominal tergite markings variable, if dark, subtriangular then wing without apparent dark substigmal mark in ♂♀; mainland Africa **16**

16 Hind femur with median third only slightly infuscated, if at all; wing with light brown stigma, wing membrane lightly and evenly brown suffused (Figs 41, 42); abdominal tergites orange-yellow with blackish subtriangular median markings and similarly coloured lateral markings ..... ***S. binominata* (Bequaert)** (in part, ♂)

– Hind femur with median third blackish; wing with dark brown stigma, wing membrane darker brown suffused on apical half, with some cells having a small hyaline patch at their centres; abdominal tergite colour variable, but never with subtriangular markings..... **17**

17 Upper occiput with narrow subrectangular markings not reaching down past upper third of occiput (Fig. 36); tergites 1–5 each with a median longitudinal blackish marking flanked for most part by bluish-grey pruinosity, additionally tergites 3–5 each with a grey pruinose posterior band..... ***S. zombaensis* Muller, sp. nov.**

– Upper occiput with wide subrectangular markings running down to occipital foramen; tergite 1 appearing orange-yellow without any pruinosity,

tergites 2 and 3 with a light brown dorsal marking appearing to cover most of dorsal surfaces; tergites 4 and 5 orange-yellow, with tergites 6 and 7 appearing to have brownish posterior margins, all tergites without apparent pruinosity (Fig. 18) ..... ***S. dimidiatipennis* (Brunetti)**

***Suragina agramma* (Bezzi, 1926)**
Figs 1, 9, 10, 37, 55, 59, 75

Atrichops monogramma var. *agramma* Bezzi, 1926: 306.
Suragina agramma: Stuckenberg 1960: 291, fig. 87; Stuckenberg 1980: 312.

Type. Assumed lost by Stuckenberg (1960: 285). However a specimen matching the specimen locality data provided by Bezzi (1926: 306) was identified in the collection of the KwaZulu-Natal Museum (NMSA). It also has a label written by Bezzi affixed to it, identifying it as the female type of *S. agramma*. No additional information available.

Type material examined. *Holotype*: [South Africa] • 1♀; [Mpumalanga]; Baberton, De Kaap [Valley], B. 50; [25°35.2533'S, 30°58.4200'E]; 5 Oct. 1919; H.K. Munro leg.; (NMSA-DIP 028199).

Additional material examined. Kenya • 1♀; Coast Province; Shimba Hills Nat. Pk. [National Park], just inside Longomwagandi Forest; 04°14.0736'S, 39°24.1012'E; 389 masl; 27 Aug.–10 Sep. 2008; R. Copeland leg.; Malaise trap; (ICIPE) • 1♀; Shimba Hills Nat. Pk. [National Park], just inside Longomwagandi Forest; 04°14.0736'S, 39°24.1012'E; 389 masl; 24 Sep.–8 Oct. 2008; R. Copeland leg.; Malaise trap; (ICIPE) • 1♀; Shimba Hills Nat. Pk. [National Park], just inside Longomwagandi Forest; 04°14.0736'S, 39°24.1012'E; 389 masl; 19 Nov.–3 Dec. 2008; R. Copeland leg.; Malaise trap; (ICIPE) • 1♂2♀; Coast Province; Taita Hills, Nwatate area, below Bura Bluff; 03°29.066'S, 38°19.951'E; 1011 masl; 27 Jul.–10 Aug. 2011; R. Copeland leg.; riverine forest; Malaise trap; (ICIPE) • 1♀; Coast Province; Taita Hills, Chawia; 03°28.745'S, 38°20.497'E; 1614 masl; 23 Jan.–6 Feb. 2012; R. Copeland leg.; next to small forest pond; Malaise trap; (ICIPE: 20993AtherG11) • 1♀; Coast Province; Taita Hills, Chawia; 03°28.745'S, 38°20.497'E; 1614 masl; 8–22 Mar. 2012; R. Copeland leg.; next to small forest pond; Malaise trap; (ICIPE: 20993AtherG10) • 1♀; Coast Province; Taita Hills, Nwatate area, below Bura Bluff; 03°29.066'S, 38°19.951'E; 1011 masl; 24 Aug.–7 Sep. 2011; R. Copeland leg.; riverine forest; Malaise trap; (ICIPE) • 1♂; Coast Province; Taita Hills, Chawia; 03°28.745'S, 38°20.497'E; 1614 masl; 24 Aug.–7 Sep. 2012; R. Copeland leg.; next to small forest pond; Malaise trap; (ICIPE) • 1♂; Coast Province; Taita Hills, Nwatate area, below Bura Bluff; 03°29.066'S, 38°19.951'E; 1011 masl; 7–21 Sep. 2011; R. Copeland leg.; riverine forest; Malaise trap; (ICIPE) • 3♂3♀; Coast Province; Taita Hills, Nwatate area, below Bura Bluff; 03°29.066'S, 38°19.951'E; 1011 masl; 10–24 Aug. 2011; R. Copeland leg.; riverine forest; Malaise trap; (ICIPE) • 1♀; Coast Province; Taita Hills, Nwatate area, below Bura Bluff; 03°29.066'S, 38°19.951'E; 1011 masl; 27 Dec. 2011–10 Jan. 2012; R. Copeland leg.; riverine forest; Malaise trap; (ICIPE) • 4♀; Eastern Province; Njuki-ini Forest, nr. Forest station; 00°30.9978'S, 37°25.1112'E; 1471 masl; 30 May –13 Jun. 2016; R. Copeland leg.; inside indigenous forest; Malaise trap; (ICIPE) • 1♀; Eastern Province; Njuki-ini Forest, nr. Forest station;

Figures 1–8. Dorsal view of thorax (**1–4**) and head and thorax (**5–8**) of *Suragina* Walker spp. **1** *S. agramma* (Bezzi) ♀ (NMSA-DIP 028177) **2** *S. binominata* ♀ (NMSA-DIP 158408) **3** *S. bilobata* Muller, sp. nov. ♀ (CSCA) **4** *S. falsa* ♀ holotype (NHMUK014064160) **5** *S. mulanjeensis* Muller, sp. nov. ♂ paratype (NMSA-DIP 162049) **6** *S. malavaensis* Muller, sp. nov. ♀ paratype (ICIPE) **7** *S. liberiaensis* Muller, sp. nov. ♀ paratype (NMSA-DIP 158442) **8** *S. freidbergi* Muller, sp. nov. ♀ paratype (NMSA-DIP 158425). **4** Copyright NHMUK under CC BY 4.0. Not to scale.

00°30.9960'S, 37°25.1058'E; 1455 masl; 12–26 Feb. 2006; R. Copeland leg.; inside indigenous forest; Malaise trap; (ICIPE). Malawi • 1♀; [Southern Region]; Zomba; 1535Ad [15°23.00'S, 35°20.00'E]; 1100 masl; 24–27 Sep. 1980; J.G.H. Londt & B.R. Stuckenberg leg.; (NMSA-DIP 028177). South Africa • 1♂; Limpopo; Blouberg, Northern side, Glenferness; [23°49.236'S, 29°47.374'E] 16–21 Jan. 1965; Transvaal Museum Expedition; (NMSA-DIP 028189) • 3♀; Mpumalanga; Mariepskop State Forest, Motlasedi River at:; 24°35.7333'S, 30°53.2833'E; 850 masl; 20–24 Jan. 2017; B.S. Muller & A.H. Kirk-Spriggs leg.; streambed and grassy floodplain, Legogote Sour Bushveld, Malaise trap; (BMSA(D)124062, BMSA(D)124621, BMSA(D)124627). Zimbabwe • 4♀; [Manicaland Province]; Umtali District; S. Rhodesia; [18°58.00'S, 32°38.00'E]; 12 Apr. 1931; P.A. Sheppard leg.; (♀: NMSA-DIP 028202; NMSA-DIP 158390; NMSA-DIP 158389; NMSA-DIP 209061) • 1♀; [Manicaland Province]; Umtali District; S. Rhodesia; [18°58.00'S, 32°38.00'E]; 24 Feb. 1931; P.A. Sheppard leg.; (NMSA-DIP 028197) • 1♀; [Manicaland Province]; Umtali District; S. Rhodesia;

[18°58.00'S, 32°38.00'E]; 16 Feb. 1930; P.A. Sheppard leg.; (NMSA-DIP 028198) • 1♀; [Manicaland Province]; S. Rhodesia, N. Vumba; [19°06.00'S, 32°47.00'E]; 7 Mar. 1965; D. Cookson leg.; (NMSA-DIP 028191) • 1♂; [Manicaland Province]; S. Rhodesia, Vumba Mount[ain]., near Umtali; [19°06.00'S, 32°47'E]; 18 Jan. 1955; B.R. Stuckenberg & P. Stuckenberg leg.; (NMSA-DIP 028196) • 1♀; N. Vumba; S. Rhodesia; [19°06.00'S, 32°47.00'E]; 11 Mar. 1965; D. Cookson leg. (NMSA-DIP 028181) • 1♀; N. Vumba; S. Rhodesia; [19°06.00'S, 32°47.00'E]; 14 Oct. 1965; D. Cookson leg. (NMSA-DIP 028195) • 1♀; N. Vumba; S. Rhodesia; [19°06.00'S, 32°47.00'E]; 13 Mar. 1965; D. Cookson leg.; (NMSA-DIP 028193) • 1♀; N. Vumba; S. Rhodesia; [19°06.00'S, 32°47.00'E]; 29 Mar. 1965; D. Cookson leg.; (NMSA-DIP 028194).

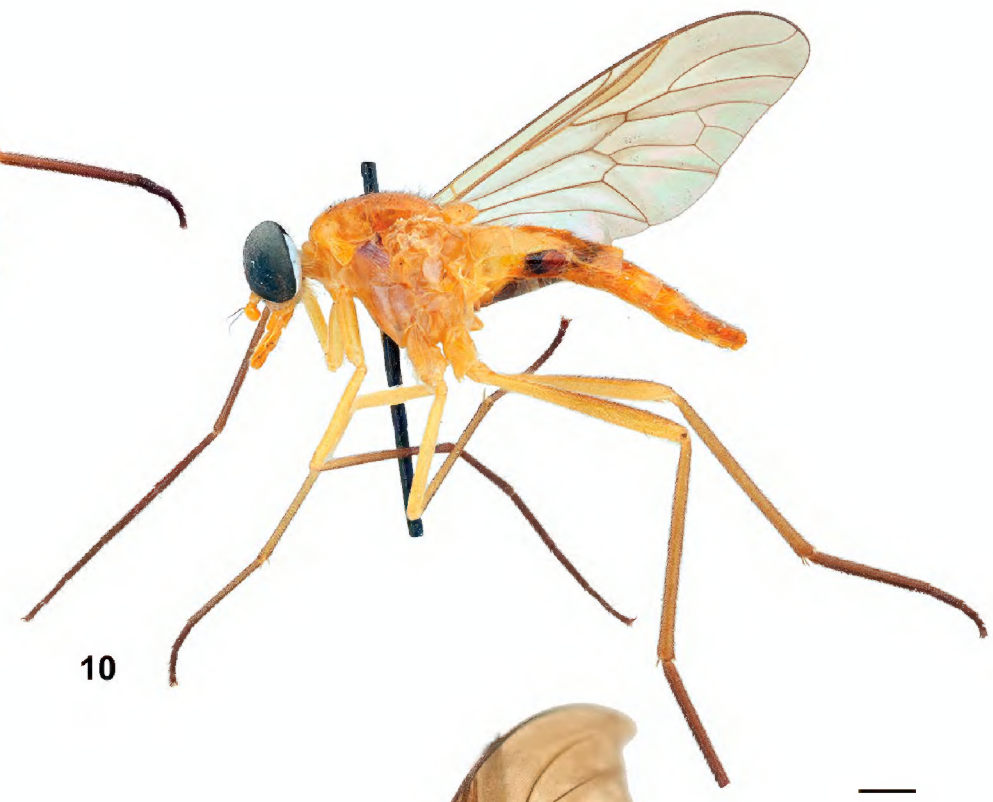
Diagnosis. *Suragina agramma* has an overall orange-yellow appearance (Figs 9, 10), the thorax without a presutural darkened spot or median vitta on the scutum (Fig. 1). Wing uniformly light brown suffused without apparent darkened substigmal marking (Fig. 37). It is most similar to *S. copelandi* Muller, sp. nov., however, it differs from it by having the fore and hind tibiae yellow to orange-yellow, whereas *S. copelandi* Muller, sp. nov. has the tibia dark brown to black. Additionally, *S. agramma* has the lateral margins of tergites 2–4 concolorous to the rest of the abdomen compared (apart from a slightly darkened margin on tergite 2 in some specimens) to the dark lateral margins in *S. copelandi* Muller, sp. nov.

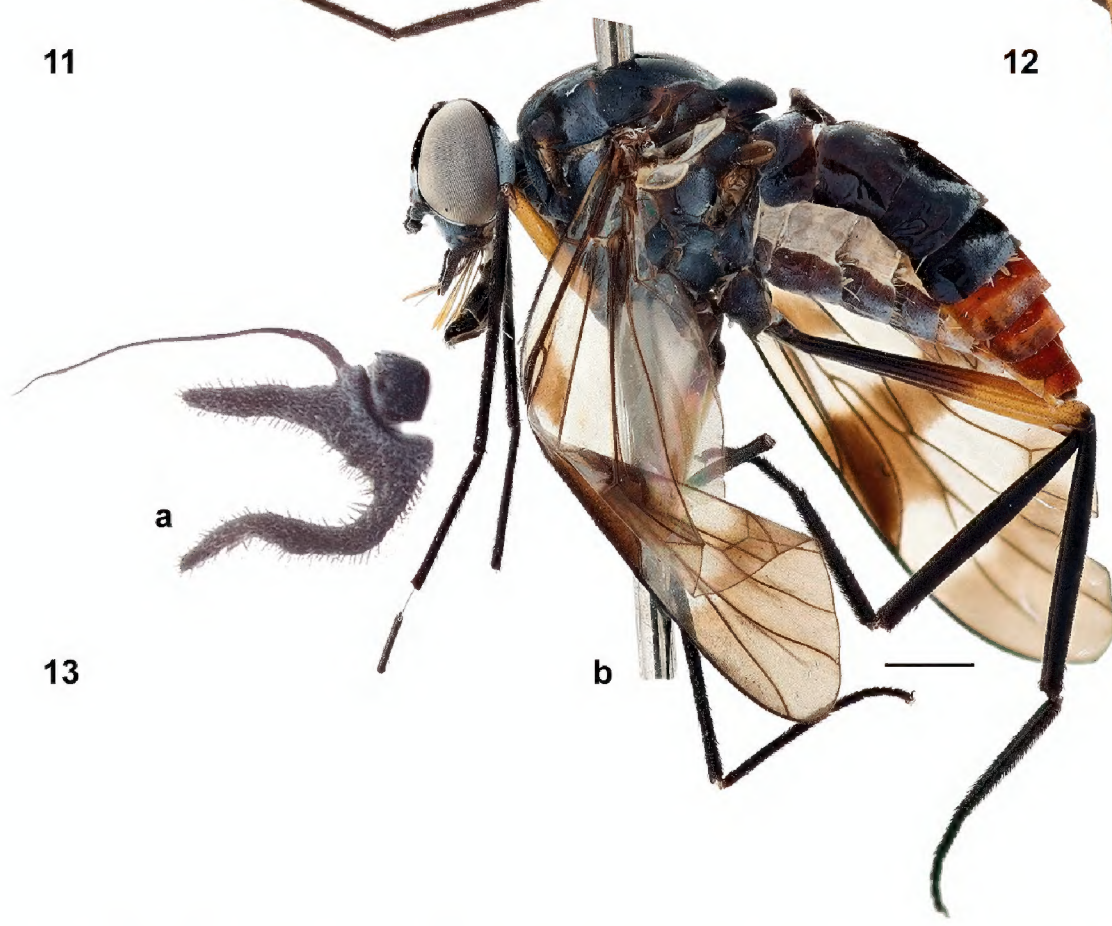
Remarks. Stuckenberg (1960) notes “eyes not contiguous” for the male from Vumba, but upon examination, the said specimen has eyes touching briefly, not “very narrowly separated” throughout. The Vumba specimen has markings on tergites 1 and 2, these are absent from the Eshowe specimen of Stuckenberg (1960). Similarly, the current Kenyan specimens examined also have tergites 1 and 2 with some slight markings similar to that of the Vumba specimen as described by Stuckenberg (1960).

Redescription. ***Measurements*** (♂ n = 5, ♀ n = 5): Wing span: ♂ 7.0–8.2 mm (avg. 7.9 mm); ♀ 8.3–8.6 mm (avg. 8.4 mm); body length: ♂ 9.0–10.1 mm (avg. 9.6 mm); ♀ 8.7–9.5 mm (avg. 8.9 mm); wing span to body length ratio (avg.): ♂ 0.82; ♀ 0.94.

Male (Fig. 9).

Head: Orange-yellow colour, with silver-white pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation (absent in ♀); ocellar tubercle slightly more elevated than frons, bare, colour black; vertex silver-white pruinose, with long pale setulae; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye, margin less indented than in ♀; vertex narrower than in ♀; dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-white pruinosity as rest of head, except for paired narrow dark brown, almost black (taller in ♀) markings with pale setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput with short, pale setulae on dorsal margin and on rest of upper surface, lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar pale ventral setulae; frons silver-white up to narrow area before eyes touch when viewed dorsally, dark velvety-brown when viewed anteriorly; frons at narrowest where eyes touch, widening towards antennal base; frons bare; face and gena silver-white with pale setulae, clypeus orange with silver-white





Figures 9–13. *Suragina* Walker spp. lateral habitus: *S. agramma* (Bezzi): **9** ♂ (NMSA-DIP 028196) **10** ♀ holotype (NMSA-DIP 028199); *S. bezzii* (Curran): **11** ♂ (SAM-DIP-A018382) **12** ♀ (SAM-DIP-A018410); *S. bilobata* Muller, sp. nov.: **13a** ♀ paratype 1st flagellomere (CSCA) **13b** ♀ holotype (CSCA). Scale bars: 1 mm.

pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove; scape, pedicel, 1st flagellomere orange-yellow, 2nd flagellomere brownish; 1st flagellomere reniform,

only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape and pedicel with pale dorsal and ventral setulae of similar size, palpus orange-yellow, well-developed, ca 0.5× length of proboscis; proboscis comparatively same size as that of ♀ in relation to head; proboscis orange-yellow with long pale setulae, shorter setulae ventrally; some scattered small dark setulae on proboscis and palpus.

Thorax: Majority of surface orange-yellow, median dorsal surface of scutum and scutellum with short dark setulae, remainder of thorax with longer pale setulae, especially on pleura and lateral surface of scutellum; postsutural setulae similar to presutural setulae, except for longer prescutellar setulae; postpronotal lobe slightly lighter orange-yellow in colour compared to rest of thorax, with pale setulae; scutum and scutellum uniformly orange-yellow without any vittae; pleura generally orange-yellow in colour with except for anepisternum that has a dark brown marking; anepisternum, katepisternum and katatergite lightly silver-white dusted; notopleuron with long pale setulae; area surrounding posterior spiracle orange-yellow, postspiracular scale orange-yellow, same colour as rest of thorax; proepisternum, pronotum orange-yellow; anterior spiracle bare posteriorly; proepimeron, proepisternum with pale setulae, anepisternum with pale setulae; katatergite with pale setulae; rest of pleura bare.

Legs: Coxae orange-yellow; fore and mid coxae with long pale setulae on surface, hind coxa with long pale setulae on anterior and lateral apical edges, and with well-developed anterior apical point; all trochanters same orange-yellow colour as rest of body with some scattered short pale setulae; all femora uniformly orange-yellow; mid and hind femora with small anterior apical dark mark; fore tibia darker orange-brown except for proximal area which is orange-yellow, mid and hind tibiae orange-yellow; all tarsi with somewhat darker appearance, similar in colour to fore tibia, middle basal tarsomere lighter; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore and mid femora covered with pale setulae on all surfaces except for dorso-apical surface with short dark setulae, hind femur with mixed long pale and dark setulae on dorsal and ventral surface, basally with long pale setulae, anteriorly with short setulae and posteriorly with longer setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae; hind tarsal segments 0.97–1.05× as long as hind tibia; tibial spur formula 1:2:2.

Wing: Slight light brown suffused appearance; with a slightly yellow-brown stigma over area of veins R_1 and R_{2+3} and cell r_1; veins light brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere almost entirely orange-yellow, with very short dark setulae and slightly infuscated apically.

Abdomen: Orange-yellow, tergites and sternites without apparent dark markings (some specimens may appear darkened due to dicolouration due to dried gut contents); tergites and sternites similar in colour with short black setulae on median-dorsal surface of tergites, rest of surface of abdomen covered in long pale setulae; tergite 1 with weak median longitudinal suture.

Terminalia (Figs 55, 59): Entirely orange-yellow in colour; epandrium and cercus with dark setulae, hypoproct and hypandrium with pale setulae; gonostylus tapering with truncated apex, outer ventral surface of gonostylus base with 3 short setulae, rest of gonostylus appearing bare; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner surface of upper half with short setulae; parameral apodeme short, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme ca 1.2× length of gonocoxite and similar in length to ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites.

Female (Fig. 10): Similar to ♂ except for the following:

Head: Dichoptic; lateral edge of eye without indentation (slight in ♂); ocellar tubercle with short dark setulae; dorsal margin of eye more indented than in ♂; vertex wider than in ♂, dark directly behind ocellar tubercle up to posterior of eye margin (in anterior view), appearing silver-white when viewed dorsally; dorsal inner edge of eye with paired dark markings but only visible when viewed anteriorly, otherwise area similarly silver-white pruinose; occiput with same silver-white pruinosity as rest of head, except for paired dark brown, almost black (taller than in ♂) markings on upper occiput, abutting posterior margin of eyes, flanking vertex; frons velvety-black from ocellar tubercle down to lower half of eye, silver-white down to antennal base; frons dark setulose on velvety-black area, pale setulose on silver-white pruinose area (♂ bare), at narrowest 1.8× width of ocellar tubercle, widening slightly towards antennal base; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; 1st flagellomere comparatively much larger than in ♂.

Thorax (Fig 1): Scutum more densely setulose than in ♂.

Legs: Fore tarsi symmetrical; setulae of femora overall shorter (compared to ♂) except for preapical area of fore femur that has long pale setulae; hind femur with mix of short pale and dark setulae; hind tarsal segments 0.92–1.02× as long as hind tibia.

Wing (Fig. 37): Similar to ♂.

Abdomen: Dark dorsal setulae on tergites appearing longer towards posterior of abdomen.

Terminalia **(**Fig. 75): Cercus orange-yellow with pale setulae; genital fork with distal apodeme broad, forked; median lobe with shallow apical emargination; paired apical lobes with slender appearance and inner surface gradually rounded with clustered microtrichia at apex; arms gradually rounded; three ovate-shaped and sclerotised spermathecae.

Distribution. Kenya (new record), Malawi (new record), South Africa, Zimbabwe.

Behaviour. David Cookson wrote on a specimen label, collected in 1964 from Northern Vumba: “This dabs at water-surface like a tabanid and settles on bushes with a blob of water on its mouth parts”.

Suragina bezzii **(Curran, 1928)**
Figs 11, 12, 38, 57, 56, 60, 76

Atrichops bezzii Curran, 1928: 172.
Suragina bezzii: Stuckenberg 1980: 312.

Atrichops varicolor Brunetti, 1929: 2. syn. nov.
Suragina varicolor: Stuckenberg 1980: 313.

Synonymy of *Suragina varicolor* (Brunetti, 1929). Images of both the holotypes of *S. bezzii* and *S. varicolor*, as well as identified material from Uganda, Kenya and Burundi were examined and compared. There is no marked difference between the two species, apart from slight variation in colour intensity due to different preservation methods. Thus, *S. varicolor* is hereby designated as junior synonym of *S. bezzii*.

Type material examined. [from digital photographs] ***Holotype*:** ♀; [Democratic Republic of Congo] • Bengamisa, Belgian Congo; [0°58.21'N, 25°12.64'E]; 29 Sep. 1914; (AMNH). Type photos accessible at: https://emu-prod.amnh.org/imulive/iz/iz.html#details=ecatalogue.10021491.

Other type material examined. *S. varicolor* syn. nov. type [from digital photographs]: ***Holotype*:** Uganda • 1♀; Southern Region; Kampala; [0°18.8167'N, 32°34.8667'E]; 13 Aug. 1911; Presented by the Imperial Bureau of Entomology, British Museum 1929–48; (NHMUK 014064157).

Other material examined. Burundi • 1♀; Ruvubu National Park, nr. Ruvubu River; [3°10.00'S, 30°20.00'E]; 1382 masl; 21 Feb.–8 Mar. 2010; R. Copeland leg.; edge of forest; Malaise trap. Kenya • 1♀; Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 22 Oct.–5 Nov. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE) • 1♀; Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 24 Sep.–8 Oct. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE). Uganda • 1♂48♀; Kibale National Park, Kanyawara, Makerere University Biological Field Station; 00°33.823'N, 30°21.490'E; 1505 masl; 12–26 Oct. 2008; S van Noort leg.; UG08-KF3-M13; Malaise trap; primary mid-altitude Rainforest (♂: SAM-DIP-A018410; ♀: SAM-DIP-A018378, A018379, A018380, A018381, A018383, A018384, A018386, A018387, A018388, A018389, A018391, A018392, A018393, A018394, A018395, A018396, A018397, A018398, A018399, A018400, A018401, A018402, A018403, A018404, A018405, A018406, A018407, A018408, A018409, A018411, A018412, A018413, A018414, A018416, A018417, A018418, A018419, A018420, A018421, A018422, A018423, A018424, A018425, A018426, A018427, A018428, A018429, A018432).

The female material from Kibale National Park agrees entirely with that of the original type description as well as with the publically available photos of the holotype female.

Diagnosis. *Suragina bezzii* has an overall dark appearance (Figs 11, 12), with its entire thorax dark brown to blackish with varying levels of bluish-grey pruinosity throughout. The wings are light brown suffused with a dark brown stigma and a brown suffused substigmal marking (Fig. 38). The abdomen has tergite 2 with a fenestrated appearance and the tergites 4–6 orange, contrasting with the otherwise dark brown abdomen. The species is most similar to *S. semiobscura* Muller, sp. nov. but differs from it by having the postpronotal lobes dark brown as opposed to pale yellow. *Suragina semiobscura* Muller, sp. nov., most strikingly, has the upper half of the wing dark brown suffused, the lower half appearing lighter, creating a two-toned appearance (Fig. 53) compared to that of *S. bezzii* that has the wing uniformly brown suffused.

Remarks. Curran (1928: 172) remarked that it was possible that the "black undescribed" specimen mentioned by Bezzi (1926: 304) is in fact *S. bezzii*. That is however just conjecture at this point in time as no further information is available regarding the whereabouts of the specimen mentioned by Bezzi, nor was it ever described. There are several dark species from west and central African countries. Bezzi's comment: "This last species, like *A. disciclara* Speiser, 1914, shows a deep longitudinal median furrow on the fore part of the frons." is not diagnostic, as all known Afrotropical *Suragina* have a longitudinal median groove or "furrow" running up from between the antennal bases, with varying degrees of depth.

Description. ***Measurements*** (♂ n = 1, ♀ n = 5): Wing span: ♂ 7.4 mm; ♀ 8.6–9.1 mm (avg. 8.4 mm); body length: ♂ 9.3 mm; ♀ 9.0–9.8 mm (avg. 9.5 mm); wing span to body length ratio (avg.): ♂ 0.80; ♀ 0.94.

Male (Fig. 11).

Head: Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation; ocellar tubercle barely visible in profile, black in colour (appears to be rubbed bare in both sexes due to degradation from preservation method); vertex with slight grey pruinosity, otherwise appearing black in colour and dark setulose; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye, not placed as deeply towards middle of head as in ♀; dorsal inner edge of eye abutting ocellar tubercle; occiput with same bluish-grey pruinosity as rest of head; paired large rectangular black markings with dark setulae on upper occiput widening towards lateral margin of head, abutting posterior margin of eyes, flanking vertex; upper occiput with similar dark setulae; lower occiput with long pale setulae medially, dark setulae laterally; genal area bluish-grey with dark setulae, these dark setulae continue ventrally on head to mouthparts that have similar dark ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons widening from velvety-black patch towards antennal base; frons bare; face with pale setulae; clypeus black with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by a deep transverse suture, similar to lateral sutures; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove running between; scape, pedicel dark brown with whitish pruinosity; 1st flagellomere orange, with some slight darker markings and with similar pruinosity as other segments, 2nd flagellomere dark brown; scape and pedicel of similar size; 1st flagellomere reniform, ca 1.5× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus black on majority of surface with scattered white pruinosity, orange-yellow on basal third, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis mostly brown, basally more orange-yellow, entire structure interspersed with some dark setulae and some shorter pale setulae.

Thorax: Scutum rubbed bare due to degradation from preservation method (♀ with two feint dorsocentral bluish-grey pruinose vittae running from pronotum and joining before scutellum), otherwise dark brown with bluish-grey pruinosity; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe same dark brown as rest of scutum, slight bluish-grey pruinose, setation

unknown, anterolateral margin of lobe lighter yellowish- to orange-brown (♀ colouring more apparent); notopleuron appearing slight bluish-grey pruinose when viewed in profile, however, when viewed dorsally pruinosity shifts into a silver-grey pruinose appearance, running up towards edge of mesonotum (notopleuron mostly rubbed bare except for anterior edge with long dark setulae); postalar wall and postalar callus dark brown with slight bluish-grey pruinosity, anterior of postalar callus orange-yellow; scutellum dark brown with bluish-grey pruinosity, entire margin orange-yellow from base to apex; supra-alar area, postalar wall and postalar callus with patches of dark setulae (less apparent and numerous than in ♀); majority of pleura bluish-grey pruinose, except for anterior of anepimeron and meron shiny blackish-brown; all pleura that are bluish-grey pruinose have pale setulae (only some remnant setulae remain due to damage from preservation method), except for katatergite that has long dark setulae; anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles whitish-yellow and surroundings yellowish-brown, bare; postspiracular scale dark brown.

Legs: All coxae entirely blackish-brown with only some scattered white pruinosity; fore coxa with mostly pale setulae except for some dark setulae apically; mid coxa with long dark setulae on anterior surface, posterior margin appearing bare; hind coxa with a mix of long pale and dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long dark setulae; all trochanters reddish dark brown, all trochanters with short pale setulae; fore femur almost entirely yellow, except for blackish-brown apex and base; mid femur missing; hind femur dark brown except for yellow basal and apical quarters; fore tibia and 1st and 2nd tarsal segments dark brown almost black, rest of for tarsi missing; mid tibia and tarsi missing; hind tibia and basitarsus blackish-brown, with base and apex of hind tibia yellowish-brown, rest of hind tarsi missing; fore and hind femora rubbed clean, setation unknown; fore tibia with short dark setulae; hind tibia with dark setulae that are at least as long as segment is wide; hind leg overall stouter than remaining legs; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2; fore tibial spur weaker than that of hind tibia.

Wing (Fig. 38): Light brown suffused on majority of surface except for cell *cua* and anal lobe; dark brown stigma over cell r_1; darker suffused substigmal marking running down from stigma over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; veins dark brown, with additional darker brown suffusion around vein *CuA*; costa without distinct downward flexure over stigma; cell *cua* closed at wing margin, cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk dirty yellow, knob darker yellowish-brown, with a few short and dark setulae.

Abdomen: Tergite 1 entirely blackish-brown, with dark setulae (pale setulae in ♀); tergite 2 pale, with dark brown median marking, giving it a fenestrated appearance; tergite 3 dark brown, tergites 4 and 5 orange, with tergite 5 with dark brown posterior band; tergite 6 with orange markings anteriorly, otherwise dark brown; remaining tergites dark brown; all tergites rubbed bare except for tergite 1; tergite 1 medially without a longitudinal suture; sternites 1–3 cream coloured, sternite 3 with posterior margin brown; rest of sternites orange-yellow; all sternites with pale setulae.

Terminalia (Figs 56, 60): Epandrium and cercus dark brown with dark setulae; gonocoxite, hypoproct and hypandrium with pale setulae; gonostylus ta-

pering with truncated apex, outer edge of gonostylus with short setulae, inner edge with a protrusion with 4 setulae, apical third of gonostylus with microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral surface down to parameral apodeme with long setulae, inner surface of upper half with short setulae, lower half with long inward-facing setulae; parameral apodeme well-developed, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme about same length as gonocoxite and slightly shorter than ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites; endoaedeagal process apically truncated and widened.

Female (Fig. 12).

Redescription. (Based on ♀ holotype photographs and additional ♀ material from Uganda.) ***Head:*** Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle barely visible in profile, dark setulose (rubbed bare in ♂ due to damage from preservation method), bluish-grey pruinose medially when viewed dorsally, otherwise appearing black; vertex grey pruinose and dark setulose; anterior ocellus similar in size to posterior pair; ocellar tubercle placed deeper in front of dorsal margin of eye compared to ♂; dorsal inner edge of eye separated from ocellar tubercle by paired silver-grey markings; occiput with same bluish-grey pruinosity as rest of head; paired large rectangular black markings on upper occiput widening towards lateral margin of head with dark setulae, abutting posterior margin of eyes, flanking vertex; rest of upper occiput with pale setulae; lower occiput with long pale setulae medially and laterally; genal area with dark setulae, rest of ventral head setulae pale, these continue ventrally on head to mouthparts that have long pale ventral setulae and some shorter dark setulae; frons bluish-grey pruinose between lower half of eye down to antennal base, velvety-black from ocellar tubercle to lower half of eye; frons widening only slightly from velvety-black patch towards antennal bases; frons with dark setulae on velvety-black area; face, gena and clypeus with bluish-grey pruinosity; face sparsley populated with long pale setulae; clypeus black with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by transverse suture, (less prominent than in ♂) similar to lateral sutures; antennal bases separated ca 0.5×–0.75× width of scape, with slight longitudinal groove running between; scape dark brown with whitish pruinosity and with yellowish lateral margins; pedicel dark brown with whitish pruinosity; 1st flagellomere orange to orange-brown with similar pruinosity as other segments, scape ca 1.5–2× length of pedicel; 1st flagellomere ca 2× size of pedicel; 2nd flagellomere, brown, arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus black on majority of surface with scattered white pruinosity, orange-yellow on at most basal half, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis mostly brown, basally more orange-yellow, entire structure interspersed with some pale and dark setulae of varying length.

Thorax: Scutum shining black with two feint dorsocentral bluish-grey pruinose vittae running from pronotum to before scutellum; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe dark brown, slight bluish-

grey pruinose with long pale setulae, anterolateral margin of lobe lighter yellowish- to orange-brown (more apparent than in ♂); scutum with paired, black almost velvety, rectangular marking behind postpronotal lobe (not visible in ♂ due to damage); notopleuron with same colouration as in ♂, however, ♀ notopleuron with scattered pale setulae interspersed with some dark setulae, anteriorly with pale setulae compared to dark group of setulae in ♂; postalar wall and postalar callus dark brown with slight bluish-grey pruinosity, anterior of postalar callus orange-yellow; supra-alar area, postalar wall and postalar callus with patches of dark setulae (more apparent and numerous than in ♂); scutellum dark brown with bluish-grey pruinosity, apical margin orange-yellow; scutum generally with short dark setulae with postsutural setulae longer than presutural setulae, especially prescutellar setulae; majority of pleura bluish-grey pruinose, except for anterior of anepimeron and meron shiny blackish-brown; all pleura that are bluish-grey pruinose have some pale setulae; katatergite with long pale setulae, in contrast to ♂ that has long dark setulae; anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles yellowish-brown to whitish-yellow (due to damage from preservation method) and surroundings yellowish-brown, bare; postspiracular scale dark brown.

Legs: All coxae brown to blackish-brown with some bluish-grey pruinosity; fore coxa with mostly pale setulae except for some dark setulae apically; mid coxa with long dark setulae on anterior apical surface, otherwise with pale setulae, and sparsley setulose along posterior margin (♂ with only dark setulae); hind coxa with dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; all trochanters reddish dark brown, some more yellowish apically, all trochanters with short pale setulae; fore femur in most specimens yellow with extreme base and apex dark brown, some individuals with fore femur dark brown on basal half and apical quarter to third with remainder of segment yellow; mid femur dark brown except for ca apical third that is yellow; hind femur dark brown except for yellow basal and apical quarters; fore tibia and tarsi dark brown to blackish; mid tibia and tarsi yellow, tarsi appearing somewhat darker yellow; hind tibia and basitarsus blackish-brown, with apex of tibia yellowish-brown in some specimens; fore tarsal claws and pulvilli symmetrical, pulvilus and empodium of similar size; fore tarsi with long, somewhat curved along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore femur dorsally with short dark setulae, except for several scattered short pale setulae, apically and medioventrally with long pale setulae, and with a group of 1–3 dark setulae located in middle of femur; mid femur covered in short pale setulae, but with longer pale setulae ventrally and short dark setulae apically; hind femur with mix of short pale and dark setulae, with apex having somewhat longer pale and dark setulae ventrally; hind leg overall stouter than remaining legs; all tibiae with short dark setulae; hind tarsal segments 0.9–1.0× as long as hind tibia; tibial spur formula 0:2:2.

Wing: Light brown suffused on majority of surface, except for cells *bm* and *cua*, and anal lobe, overall appearing darker on apical half; dark brown stigma over cell r_1; darker suffused substigmal marking running down from stigma over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; veins dark brown, with additional darker brown suffusion around vein *CuA*; costa without distinct

downward flexure over stigma; cell *cua* closed at wing margin or at a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk dirty yellow, knob darker yellowish-brown, with a few short and dark setulae.

Abdomen: Tergite 1 dark to blackish-brown, with basal margin of some specimens more orange-brown, tergite 1 with pale setulae; tergite 2 mostly pale to orange-yellow, with brown to dark brown median marking running down to brown to dark brown band along posterior margin of tergite, giving it a fenestrated appearance, lateral margins of tergite similar brown colour to rest of tergite; tergites 3 and 4 dark brown with tergite 4 with some specimens also having orange markings posteriorly, tergites 5–7 orange, each with a dark brown posterior band; lateral margins of tergites 4–7 with blackish markings; some specimens have tergite 7 entirely dark brown; dark brown parts of tergites with pale setulae, and orange parts with dark setulae; tergite 1 medially with a longitudinal suture; sternites 1 and 2 cream coloured, sternites 3 and 4 dark brown with posterior margins darker; rest of sternites orange-yellow, ending in dark brown terminalia; all sternites with pale setulae.

Terminalia (Fig. 76): Cercus dark brown with pale setulae; genital fork has distal apodeme slender, forked; median lobe with deep apical emargination, paired apical lobes with a slender appearance, inner surface inward projecting with clustered microtrichia at apex, arms gradually rounded; three ovate-shaped and sclerotised spermathecae.

Distribution. Burundi (new record), Democratic Republic of Congo, Kenya (new record), Uganda (new record).

***Suragina bilobata* Muller, sp. nov.**

https://zoobank.org/2526571B-58F7-4EA6-A1D4-F48D0FDFA13C

Figs 3, 13, 39, 77

On the material. The type series of specimens available for this new species are in poor condition as these come from long-term Malaise samples, with the most complete specimen missing its 1st flagellomere (present in other more damaged specimens), and all specimens exhibiting some loss of setation on the head, body and legs. In the description missing setulae are recorded as unknown (referring to the unknown characteristics such as length or colour), but the alveoli are present. While it is not ideal to designate a holotype and paratypes from material in this state, it should be taken into account that procurement of additional material from Madagascar is not viable due to the highly seasonal nature of Athericidae adults and the prohibitively expensive nature of performing fieldwork in Madagascar. The forests of Madagascar are threatened by deforestation (e.g. Harper et al. 2007), with Ranomafana National Park being one of the largest remaining primary rainforests in Madagascar (Torppa et al. 2020). Describing and identifying endemic species could contribute to its conservation. This species is thus far the only species of *Suragina* that does not have a reniform 1st flagellomere, instead it is bilobate and c-shaped (Fig. 13a). It was also briefly mentioned by Woodley (2017: 888). Woodley regarded the specimens as *Suragina*, and viewed the 1st flagellomere shape as "a highly autapomorphic antennal flagellum". In all other regards, *S. bilobata* Muller, sp. nov. possesses characters unique to *Suragina*: the frons velvety-black on upper half

and silver-grey on lower half in combination with hind coxa having a well-developed anterior apical point, and generally slender and elongated legs. Given the unique antennal characters and contrasting black and orange colouration of this species, there is little doubt that any future specimens collected will be easily attributable to *S. bilobata* Muller, sp. nov.

Type material examined. *Holotype*: MADAGASCAR • 1♀; Fianarantsoa Province; Ranomafana National Park, radio tower; 21°15.05'S, 47°24.43'E; 1127 masl; 23–30 Apr. 2002; M.E. Irwin, R. Harin'Hala leg.; Malaise in open area nr forest edge; CSCA.

Paratypes: 2♀; same data as Holotype; CSCA.

Holotype and paratypes deposited in CSCA.

Diagnosis. *Suragina bilobata* Muller, sp. nov. has its 1st antennal flagellomere uniquely bilobed, or c-shaped (Fig. 13a), contrasting to the typical reniform shape found in other Afrotropical Athericidae. The overall appearance of the species is reminiscent of other dark Afrotropical species (e.g. *Suragina bezzii*), but the combination of the antennal shape, and wing with a dark stigma, substigmal marking, and hyaline band before apical brown suffusion makes it easy to distinguish from all other known species.

Description. *Measurements* (♀ n = 1): Wing span: 8.1 mm; body length: 8.9 mm; wing span to body length ratio: 1.03.

Male. Unknown.

Female (Fig. 13).

Head: Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle elevated, visible in profile, same velvety-black as upper half of frons, surface setulae unknown; vertex bluish-grey pruinose, with dark setulae; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye; dorsal inner edge of eye with paired dark markings; occiput with same bluish-grey pruinosity as rest of head; paired black markings with unknown setulae on upper occiput running down to near occipital foramen, abutting posterior margin of eyes, flanking vertex; upper occiput otherwise with pale setulae; lower occiput lateral marginal setulae unknown, with long pale setulae medially, these continue ventrally on head to mouthparts that have mix of pale and dark ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening towards antennal base; frons setulae unknown; face with silver-white pruinosity and gena bluish-grey, face with a mix of pale and dark setulae, genal setulae unknown; clypeus with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse suture, with deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5–0.75× width of scape, with slight longitudinal groove running between; scape, pedicel, and 1st flagellomere dark brown with some whitish pruinosity, 2nd flagellomere dark brown; scape and pedicel of similar size; 1st flagellomere bilobate, c-shaped (Fig. 13a), upper lobe ca 2× length of scape and pedicel combined, lower lobe ca 3× length of scape and pedicel combined; 1st flagellomere lobes covered on all surfaces with pale setulae that are as long as lobes are wide; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus brown with bluish-grey

pruinosity, with dark setulae throughout, ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis dark brown with some whitish pruinosity on prementum, dorsal setulae unknown, ventrally with short dark setulae and some scattered longer pale setulae.

Thorax (Fig. 3): Scutum shining black with two feint dorsocentral bluish-grey pruinose vittae running from pronotum to before scutellum, ending in a large bluish-grey pruinose posterior patch; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe dark brown, slightly bluish-grey pruinose with long pale setulae; notopleuron bluish-grey pruinose with long pale setulae just behind postpronotal lobe and rest of surface with dark setulae; postalar wall and postalar callus brown with bluish-grey pruinosity; scutellum uniform black with slight bluish-grey pruinosity; scutum setulae unknown; majority of pleura bluish-grey pruinose, except for anatergite and anepimeron yellowish-brown; all pleura that are bluish-grey pruinose have long pale setulae; anepimeron with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings brownish-yellow, bare; postspiracular scale dark brown; postscutellum black with slight bluish-grey pruinosity.

Legs: All coxae dark brown bluish-grey pruinosity on surface; fore and hind coxae with pale setulae, fore coxa with short dark setulae at apex, mid coxa with dark setulae on anterior apical surface, and inner and outer lateral surfaces, interspersed with some pale setulae; hind coxa with pale setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with longer pale setulae; all trochanters glossy black with short pale setulae; fore femur yellow with extreme basal and apical margins appearing shiny dark brown to black; mid femur similar to fore femur, except basal area dark brown, this basal area similar in length to trochanter; hind femur dark brown on basal half to two-thirds; all tibiae and tarsi dark brown to black; fore tarsal claws, empodium and pulvilli unknown; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; leg setation mostly unknown; all femora apparently with a mix of short pale and dark setulae; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 39): Dark brown stigma over apex of veins R_1 and R_{2+3} and cells *sc*, r_1, base of cell r_{2+3}, crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cell *bm* with similar dark substigmal marking medially and apically, otherwise hyaline; vein *CuA* with a dark marking along length; entirety of cells m_1 and m_2, apex of cell m_3, apical half of cell r_5, apical two-thirds of cell r_4 and apical half of cell r_{2+3} brown suffused; rest of wing hyaline; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk light brown, knob darker brown, with some short and dark setulae.

Abdomen: Tergite 1 with bluish-grey pruinosity on anterolateral margins, medially with a dark marking and a longitudinal suture; tergites 2–4 with a triangular dark marking, narrowing towards posterior with posterior and lateral margins of each segment with bluish-grey pruinosity; tergite 5 and onwards a deep orange colour, with posterior margin appearing darker; sternites 1–4 dark brown with bluish-grey pruinosity, sternites 5 and onwards orange-yellow; setation unknown.

Terminalia (Fig. 77): Cercus dark orange-brown with pale setulae; genital fork has distal apodeme apically expanded with truncated appearance, without a clear fork, median lobe with shallow apical emargination, paired apical lobes with expanded appearance, inner edge with clustered microtrichia at apex; arms gradually rounded; three oval-shaped, apically rounded spermathecae, sclerotised, short and stout.

Etymology. From the Latin "bi", two and "lobatus", having lobes; named for the unique bilobed or c-shaped 1st flagellomere. Feminine noun in the nominative singular case.

Distribution. Madagascar.

Suragina binominata (Bequaert, 1921)

Figs 2, 14, 15, 41, 42, 57, 61, 78

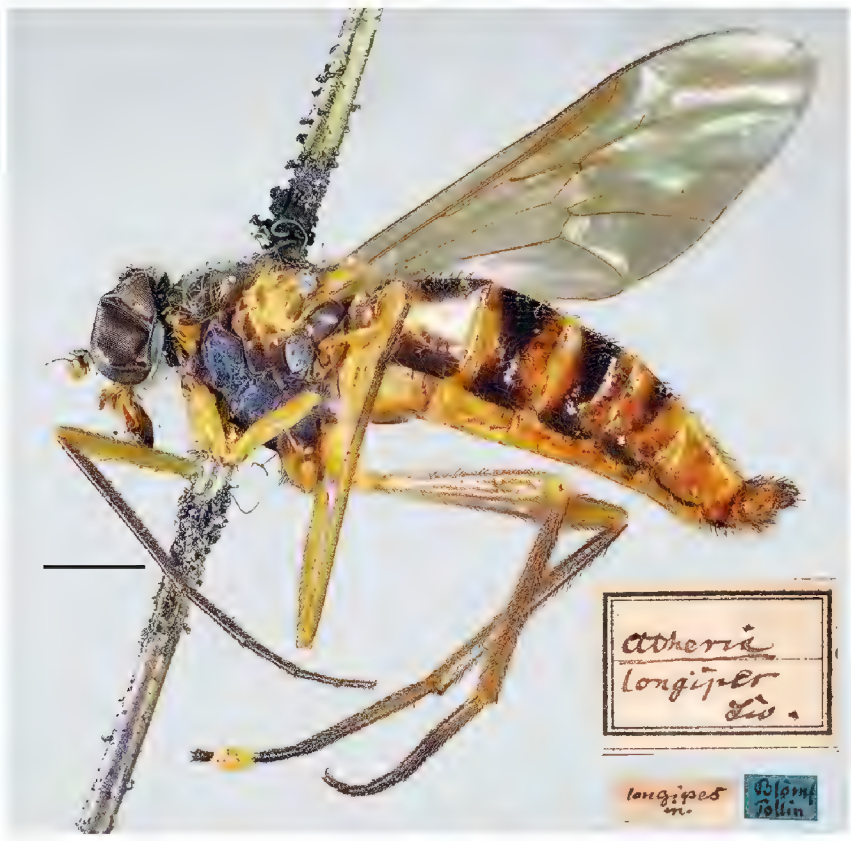
Atherix longipes Loew, 1863: 12 (Junior homonym, preoccupied. by *Ath. longipes* Bellardi, 1861).
Atrichops binominata Bequaert, 1921: 6 (replacement name for *Ath. longipes* Loew); Bezzi 1926: 310.
Suragina binominata: Stuckenberg 1960: 285, fig. 87; Stuckenberg 1980: 312.
Atrichops bivittata Bezzi, 1926: 308; syn. nov.
Suragina bivittata: Stuckenberg 1960: 286, fig. 87; Stuckenberg 1980: 312.

Synonymy of *Suragina bivittata* Bezzi. *Suragina binominata* is only known from the male holotype of *Atherix longipes* Loew, 1863. Stuckenberg (1960: 285) briefly discussed the possibility that *S. bivittata* is a junior synonym of *S. binominata*.

He stated that out of a series of four females of *S. bivittata* which he had collected from near the Nhlavini River (KwaZulu-Natal, South Africa), one female matched the female description of *S. binominata* by Bezzi (1926: 310) perfectly, with the others being very similar as well, taking into account the known degrees of variation within the species. Stuckenberg compared these to the type female of *S. bivittata* and found no significant differences between the female specimens of the two species. Additionally, Bezzi's descriptions of both the species' female specimens are based on material collected at the same locality, only seven days apart, which, coupled with Bezzi never stating that he did examine the holotype of *Ath. longipes*, complicated matters. Stuckenberg further stated that *S. bivittata* could only be synonymised with *S. binominata* after future examination and comparison of the male holotype of *Ath. longipes* Loew, 1863 with his described males of *S. bivittata*. Here we compare the type male of *Ath. longipes* with that of the males of *S. bivittata* as described by Stuckenberg (1960). There are no significant differences between the males or females of the two species, apart from minor colour differences that fall within the known variation previously exhibited by *S. bivittata*. Thus, we designate *S. bivittata* as a junior synonym of *S. binominata*.

Type material examined. [from digital photographs] ***Holotype*:** South Africa • 1♂; Free State; Bloemfontein; [29°07.00'S, 26°13.00'E]; Tollin leg.; (MLUH).

Other type material examined. *Atherix bivittata* syn. nov. type: South Africa • 1♀; [*KwaZulu-Natal*], Bulwer, Greene; [29°47.85'S, 29°46.16'E]; Sep. 1916.



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15

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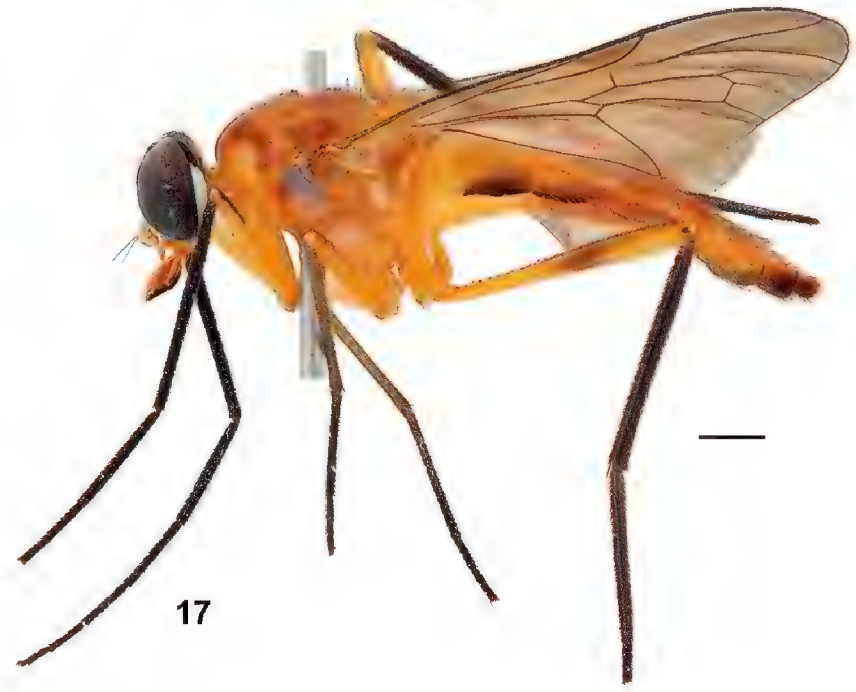


17

Figures 14–17. *Suragina* Walker spp. lateral habitus: *S. binominata* (Bequaert): **14** ♂ holotype (MLUH) **15** ♀ (BMSA(D)124083); *S. copelandi* Muller, sp. nov.: **16** ♂ holotype (BMSA(D)83426) **17** ♀ paratype (BMSA(D)84688). **14** Copyright ZNS Halle, January 30, 2024. Scale bars: 1 mm.

Other material examined. MALAWI • 1♀; [Southern Region]; Mulanje Mt. [Mulanje Massif] nr Likabula; [15°56.983'S, 35°35.617'E]; 26–28 Oct. 1983; A. Freidberg leg.; (NMSA-DIP 194746) • 1♀; [Southern Region]; Mulanje District; Mulanje mnt. [Mulanje Massif], Likabula; 15°56.2667'S, 35°30.0667'E; 786 masl; 12–15 Nov. 2016; A.H. Kirk-Spriggs & B.S. Muller leg.; Malaise trap, stream, montane evergreen forest; (BMSA(D)92592). SOUTH AFRICA • 1♀; Gauteng; Pretoria; [25°45.441'S, 28°12.618'E]; 4 Oct. 1910; Hardenberg leg.; (NMSA-DIP 028192) • 1♀; Eastern Cape; Hillside Farm, Pot River nr. Maclear; [31°19.933'S, 28°26.742'E]; 21 Jan. 1963; B.R. Stuckenberg & P. Stuckenberg leg.; (NMSA-DIP 028163) • 5♀; Western Cape; Littlestone Cottage, Robinson's Pass, R328; 33°57.756'S, 22°05.184'E; 99

masl; 7–8 Dec. 2022; B.S. Muller & M.J.J. Magoai leg.; on rock face over stream pool, hand collected; (BMSA(D)119797, 124009, 124055, 124083, 124088) • 1♀; Western Cape; Knysna, Caplant; [33°56.879'S, 23°09.575'E]; Mar. 1913; Brauns leg.; (NMSA-DIP 028161) • 1♀; North West Province; Ottoshoop; [25°48.929'S, 26°46.154'E] Apr. 1916; H.G. Breyer leg.; (NMSA-DIP 028190) • 1♀; Mpumalanga; 20 km E Nelspruit, Noordkaap River; 2530Db [25°36.579'S, 30°58.579'E]; 23 Sep. 1980; R.M. Miller leg.; NMSA-DIP 158408) • 2♀; Mpumalanga; Echo caves; [24°33.733'S, 30°36.208'E]; 6 Mar. 2000; M. Picker leg.; (NMSA-DIP 158446, 158447) • 9♀; Mpumalanga; K.N.P. [Kruger National park] Survey, Skukuza; [24°59.75'S, 31°35.52'E]; 21–24 Nov. 1972; J. van Reenen leg.; (NMSA-DIP 028164, 028167, 158434, 158435, 158436, 158437, 158438, 158439, 158440) • 1♀; North West Province; Rietspruit, Marico [Sehubyane stream]; [25°02.85'S, 26°23.90'E]; Jan. 1918; J.C. Faure leg.; (NMSA-DIP 028200) •1♀; Mpumalanga; Mariepskop State Forest, Klaserie river at:; 24°35.5667'S, 30°56.1333'E; 736 masl; 24–26 Jan. 2017; B.S. Muller & A.H. Kirk-Spriggs leg.; Streambed & marginal vegetation, Legogote Sour Bushveld; Malaise trap; (BMSA(D)125145) • 1♀; KwaZulu-Natal; Ashburton; [29°40.335'S, 30°27.119'E]; 18 Dec. 1990; R.M. Miller leg.; at light; (NMSA-DIP 158441) • 1♀; KwaZulu-Natal; Ashburton; [29°40.335'S, 30°27.119'E]; 15 Dec. 1991; R.M. Miller leg.; (NMSA-DIP 158410) • 1♀; KwaZulu-Natal; Ashburton; [29°40.335'S, 30°27.119'E]; 17 Apr. 1992; R.M. Miller leg.; on window; (NMSA-DIP 158409) • 4♂4♀; KwaZulu-Natal; Nhlavini River, Ixopo Dist.; [30°07.783'S, 30°12.614'E]; 17 Mar. 1957; B.R. Stuckenberg leg.; (♂: NMSA-DIP 028165, 158427, 158428, 158430; ♀: NMSA-DIP 158429, 158431, 158432, 158433) • 1♀; KwaZulu-Natal; Ukulinga Research Farm, 10 km SE Pietermaritzburg; [29°37.76'S, 30°24.29'E]; 20–26 Nov. 1985; R.M. Miller leg.; grassland impoundment, Malaise trap; (NMSA-DIP 194744).

Comment. Holotype ♂: middle left leg missing, left wing missing, left fore tibia and tarsi missing, right fore apical tarsus missing.

Diagnosis. A variably coloured species with the scutum ranging from orange-yellow to brown ground colour with darker pleura and heavily patterned tergites. *Suragina binominata* males are most similar to the holotype male of *Suragina nigromaculata* (Brunetti, 1929) in general appearance, but differ from it in having the lateral margins of all abdominal tergites dark brown compared to *S. nigromaculata* that has darkened lateral margins only on tergites 1 and 2. Additionally, males of *S. binominata* have the scutellum bicoloured, being orange-yellow apically and dark brown on basal half. Conversely, the holotype male of *S. nigromaculata* has the scutellum almost entirely orange-yellow except for the basal margin, being somewhat darker in appearance. The females of *S. binominata* have the scutellum similar to that of the holotype male of *S. nigromaculata*, but its scutum has a much more prominent central black vitta (Fig. 2) and similar abdominal markings to that of the *S. binominata* male.

Redescription. ***Measurements*** (♂ n = 1, ♀ n = 5): Wing span: ♂ 5.7 mm; ♀ 5.8–6.9 mm (avg. 6.6 mm); body length: ♂ 7.5 mm; ♀ 6.7–7.7 mm (avg. 7.3 mm); wing span to body length ratio (avg.): ♂ 0.76; ♀ 0.91.

Male (Fig. 14).

Head: Brown colour, with silver-grey pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation; ocellar tubercle slightly more elevated than frons, with some dark setulae and surface colour dark brown with slight pruinescence; vertex silver-grey pruinose

with long pale setulae; ocellar tubercle in front of dorsal margin of eye (♀ unknown); dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-grey pruinosity as rest of head, except for paired subrectangular dark brown, almost black markings with pale setulae on upper occiput, abutting posterior margin of eyes, flanking vertex and running down to occipital foramen; upper occiput with short pale setulae, lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have dark ventral setulae; frons silver-white running up to narrow area before eyes converge when viewed dorsally, at which point frons is velvety-black in appearance; lower part of frons dark brown when viewed anteriorly; frons at narrowest ca 0.5× width of anterior ocellus, widening towards antennal bases; frons bare; face and gena silver-grey with pale setulae, clypeus dark brown with silver-grey pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove; scape, pedicel brown, appearing darker in dorsal view; 1st flagellomere orange-yellow, 2nd flagellomere brownish; 1st flagellomere reniform, only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape and pedicel with dark setulae; scape with only dorsal setulae, pedicel with dorsal and ventral setulae, setulae of similar size; palpus orange-yellow, but darker orange-brown on apical half, well-developed, ca 0.5× length of proboscis; proboscis orange-yellow at base but orange-brown on majority of surface with long dark setulae, some scattered small dark setulae on proboscis and palpus.

Thorax: Dark brown ground colour; median dorsal surface of scutum and scutellum with short pale setulae, remainder of thorax with longer pale setulae, especially on pleura and lateral surface of scutellum; postsutural setulae similar to presutural setulae, except for longer prescutellar setulae; postpronotal lobe dark brown on majority of surface except for yellow-brown anterolateral surface; with long pale setulae.

Scutum mostly dark brown with slight median greyish pruinosity; postalar wall and callus appearing orange-yellow; scutellum bicoloured, with apical half being orange-yellow and basal half dark brown, scutellar setulae long and pale; all pleura dark brown in colour with greyish pruinosity, except for anepimeron that is yellowish-brown dorsomedially; notopleuron dark brown with long pale setulae; area surrounding posterior spiracle brown, postspiracular scale brown, lighter than colour of pleura; proepisternum, pronotum dark brown; anterior spiracle and surrounds yellow, bare; proepimeron, proepisternum with pale setulae, anepisternum with pale setulae; katatergite with pale setulae; rest of pleura bare.

Legs: Fore coxa orange-yellow; mid coxa more brownish-yellow with orange-yellow lower anterior surface; hind coxa orange-yellow with brownish markings on anterodorsal surface; fore coxa with long pale setulae on surface and shorter dark setulae apically, mid coxa with long dark setulae on surface, hind coxa with long dark setulae on anterior and lateral apical edges, and with well-developed anterior apical point; all trochanters same orange-yellow colour as rest of body with some scattered short dark setulae; all femora uniformly orange-yellow with hind femur slightly darker on middle third; fore tibia and tarsi dark brown, mid tibia orange-yellow; hind tibia dark brown with apex more yellowish; mid and hind tarsi dark brown with basitarsus same yellowish-brown on basal half as that of apex of hind tibia; fore and mid femora with covered in

dark setulae, fore femur with long pale setulae on median ventral surface and long dark setulae toward apex, mid femur with similar long dark setulae on ventral surface; hind femur with long dark setulae on dorsal and ventral surfaces, basally with long pale setulae, anteriorly with short dark setulae and posteriorly with longer dark setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae, especially on dorsal surface; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 41): Overall slight light brown suffused appearance except for discal cell and cell *cua* that are lighter; crossveins *r–m* and *bm–cu* with darker suffusions and with brown stigma over area of veins R_1 and R_{2+3} and cell r_1; veins brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere orange-yellow, with very short dark setulae and slightly darker apically.

Abdomen: Overall orange-yellow colour; tergite 1 dark brown with orange-yellow posterior and lateral margins; tergite 2 with a dark brown subtriangular marking that runs down to posterior margin, and additional dark marking on lateral margin; tergites 3 and 4 each with dark brown marking that runs transversely across entire segment to lateral margin; tergite 5 similar to tergites 3 and 4, but marking much narrower and connection between median and lateral markings lighter brown; tergites 6 and 7 with only dark brown lateral markings; tergite covered in a mix of pale and dark setulae, lateral margins with long dark setulae; sternites all orange-yellow without any apparent dark markings, all segments with similar long pale setulae as on lateral margins of tergites; tergite 1 without median longitudinal suture.

Terminalia (Figs 57, 61): Mostly dark orange-yellow in colour; epandrium with some darker brown markings at base, cercus dark brown; epandrium, hypandrium and cercus with dark setulae; gonostylus tapering with truncated apex, outer edge of gonostylus with short setulae, inner edge with protrusion with 4 setulae, apical third of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner surface of upper half with short setulae, lower ventral surface comparatively less setulose; gonocoxite with microtrichia between setulae; parameral apodeme with truncated apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly longer than ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites, apex of tines extending out past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 15).

Head: Dark brownish-black ground colour, with bluish-grey pruinosity on majority of occiput; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle slightly elevated, visible in profile, dark setulose, bluish-grey pruinose, much more apparent when viewed posterodorsally, more blackish when viewed anteriorly; vertex bluish-grey pruinose, with pale setulae, vertex appearing blackish dark brown when viewed posteriorly; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin

of eye; dorsal inner edge of eye without discernible paired dark markings, same bluish-grey pruinose as rest of head; occiput similarly bluish-grey pruinose; paired subrectangular blackish-brown markings with pale setulae on upper occiput running down to occipital foramen, abutting posterior margin of eyes, flanking vertex; upper occiput with similar pale setulae; lower occiput with lateral margins and medial area with long pale setulae, these continue ventrally on head to mouthparts that have pale ventral setulae; frons shining bluish-grey pruinose on lower half, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening only very slightly towards antennal base; frons with short dark setulae on velvety-black upper half, with scattered pale setulae at posterior of lower half of frons; face and gena grey pruinose, gena with several long pale setulae; clypeus with lighter brown ground colour similar to mouthparts (some non-type specimens have clypeus appearing almost black anteriorly), with less dense bluish-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 1× width of scape, with slight longitudinal groove running between; scape, pedicel mostly orange-yellow, dorsally more brown, with some whitish pruinosity; 1st flagellomere entirely orange-yellow; 2nd flagellomere brown; scape ca 1.5× size of pedicel; 1st flagellomere reniform, 2× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus orange-yellow with mostly dark setulae, some interspersed pale setulae; palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis darker brownish-orange on apical half, orange on basal half with some long pale setulae dorsally, short and long dark setulae ventrally.

Thorax (Fig. 2): Scutum orange-yellow with central shining black vitta with bluish-grey pruinosity running from just behind pronotum to before scutellum; scutum with presutural area with darker orange-yellow colour, some specimens with darker mark; notopleuron orange-yellow; postsutural area with blackish-brown on dorsal surface up to before supra-alar and postalar areas that are orange-yellow; pronotum orange-yellow with pale setulae; postpronotal lobe yellow, with short pale setulae; notopleuron orange-yellow, setulae pale; postalar wall and postalar callus orange-yellow; scutellum almost entirely orange-yellow with pale setulae, basal anterior margin blackish with bluish-grey pruinosity, appearing as run-on from scutum; scutum generally with short pale setulae, postsutural setulae somewhat longer, with some dark setulae as well; majority of pleura brownish with some bluish-grey pruinosity, except for anepimeron and proepisternum that are orange-yellow; pleura with pale setulae; anepimeron and katepisternum with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings orange-yellow, bare; postspiracular scale orange-yellow; postnotum blackish.

Legs: Coxae orange-yellow, some specimens with slightly darker orange-yellow posterior surfaces on mid and hind coxae; fore coxa with long pale setulae on anterior and posterior surfaces; mid coxa with long pale setulae on anterior surface; hind coxa with pale setulae on anterior surface as well as surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; all trochanters orange-yellow with short dark setulae; fore, middle and hind femora yellow; fore tibia brown with orange-yellow base, middle and hind tibia

orange-yellow; fore tarsi dark brown, mid and hind tarsi dark brown except for orange-yellow basal half of basitarsus; fore tarsal claws and pulvilli symmetrical, pulvilus and empodium of similar size; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore femur with short dark setulae on anterodorsal surface and long pale setulae on apical half of posteroventral surface; mid femur with long pale setulae on anteroventral surface, otherwise with a mix of short pale and dark setulae; hind femur mostly with short dark setulae, apically with some longer dark setulae; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsal segments 0.92–1.18× as long as hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 42): Very lightly brown suffused, almost appearing hyaline; lighter towards basal part of wing; brown stigma over apex of veins R_1 and R_{2+3} and cells *sc*, r_1; slightly darker brown suffused over base of discal cell and cell m_3; veins brown, and crossveins *r–m* an *bm–cu* (intensity differs between specimens); costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk orange-yellow, knob light brown, with some short and dark setulae.

Abdomen: Overall orange-yellow with blackish-brown markings; tergite 1 with dark median marking; tergite 2 with median longitudinal dark marking and paired dark lateral markings; tergite 3 with a median longitudinal dark marking on anterior half of tergite and with similar paired dark lateral markings; tergite 4 with a dark marking along anterior margin (very light or absent on some specimens); tergites 4–7 orange-yellow to brownish-orange, with tergite 6 posterior margin and tergite 7 lateral and dorsal surface much darker than preceding segments, in some specimens displaying as dark markings; some specimens with dark lateral markings extending down from tergites 3–7, and tergite 5 with similar anterior marginal markings as tergite 4; sternites orange-yellow in colour; all tergites with short dark setulae dorsally; tergites 1 and 2 additionally with long pale setulae on dorsal surface; lateral margins of tergites 1–4 with pale setulae and some interspersed dark setulae; remaining tergites with dark lateral marginal setulae; sternites with pale setulae, longer on sternites 1–4 compared to remaining sternites; tergite 1 medially with a longitudinal suture.

Terminalia (Fig. 78): Cercus orange to dark orange-brown with pale setulae; genital fork with distal apodeme ending broadly forked; median lobe with wide, moderate emargination; paired apical lobes with somewhat slender appearance, inner surface with clustered microtrichia at apex above a conspicuous, bare toothlike projection; arms gradually rounded; three oblong and sclerotized spermathecae.

Distribution. Malawi (new record), South Africa.

***Suragina copelandi* Muller, sp. nov.**

https://zoobank.org/256E33E2-9B8F-4226-9F25-A35370E86929

Figs 16, 17, 40, 58, 62, 79

Type material examined. ***Holotype*:** Togo • 1♂: Plateaux; Kuma Tokpli; 06°58.30'N, 00°34.15'E; 486 masl; 21–24 Jan. 2016; A.H. Kirk-Spriggs leg.; well-vegetated stream bed; Malaise trap; (BMSA(D)83426) (BMSA).

***Paratypes*:** 9♂8♀; same data as holotype; (♂: BMSA(D)83421, 83425, 83427, 83428, 83429, 83430, 83431, 83432, 83435; ♀: BMSA(D)83422, 83423, 83424, 83433, 83434, 83436, 83437, 83438). Togo • 3♂9♀; Plateaux; Dzogbegan Monastary; 07°14.27'N, 00°41.56'E; 762 masl; 24–25 Jan. 2016; A.H. Kirk-Spriggs leg.; vegetated stream bed; Malaise trap (♂: BMSA(D)84681, 84682, 84691; ♀: BMSA(D)84684, 84683, 84685, 84686, 84689, 84690, 84687, 84688, 84697) • 2♀; Plateaux: Zogbégan-Carrière, (SE von Badou), Région des Plateaux; 07°34.8333'N, 00°40.05'E; 650 masl; 23–26 Apr. 2008; A. Ssymank leg.; NN MF, FO: 7093 (CSCA). Kenya • 3♀; Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 13–27 Aug. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE) • 1♀; Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 24. Sep–8. Oct. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE) • 1♀; Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 8–22 Oct. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE) • 1♀; Western Province; Kakamega Forest, behind W. Okeka house; 00°14.13'N, 34°51.87'E; 1550 masl; 10–24 Feb. 2007; R. Copeland leg.; just inside forest; Malaise trap; (ICIPE) • 1♀; Western Province; Kakamega Forest, behind W. Okeka house; 00°14.13'N, 34°51.87'E; 1550 masl; 24 Feb.–10 Oct. 2007; R. Copeland leg.; just inside forest; Malaise trap (ICIPE) • 1♀; Western Province; Mt Elgon Lodge; [1°23.309'S, 34°48.322'E]; 1–6 Nov. 1983; A. Freidberg leg.; Malaise trap (NMSA-DIP 158399). Uganda • 1♀; Kibale National Park, Kanyawara Makerere University Biological Field Station; 00°33.823'N, 30°21.490'E; 1505 masl; 12–26 Aug. 2008; S. van Noort leg.; UG08-KF3-M13; Malaise trap, primary mid-altitude Rainforest; (SAM-DIP-A018415) • 1♀; Kibale National Park, Kanyawara Makerere University Biological Field Station; 00°34.806'N, 30°21.874'E; 1491 masl; 2–12 Aug. 2008; S. van Noort leg.; UG08-KF6-M06; Malaise trap, secondary mid-altitude Rainforest, marshy area; (SAM-DIP-A018390).

Holotype deposited in BMSA and paratypes deposited as per listed institutional codens in citations above: CSCA, ICIPE and SAM.

Diagnosis. *Suragina copelandi* Muller, sp. nov., is most similar to *S. agramma* (see *S. agramma* diagnosis) in its general appearance. It differs from it by having the fore and hind tibiae dark brown to black compared to the mostly yellow to orange-yellow appearance of *S. agramma*. Additionally, *S. agramma* has the lateral margins of tergites 2–4 concolorous to the rest of the abdomen compared (apart from a slight darkened margin on tergite 2 in some specimens) to the dark lateral margins in *S. copelandi* Muller, sp. nov. It is widely distributed from western Kenya to Togo, compared to *S. agramma* which occurs from eastern Kenya down to northeastern South Africa, seemingly without any known overlap in distribution.

Description. ***Measurements*** (♂ n = 2, ♀ n = 2): Wing span: ♂ 7.0–7.4 mm (avg. 7.2 mm); ♀ 8.8–9.4 mm (avg. 9.2 mm); body length: ♂ 9.4–9.5 mm (avg. 9.5 mm); ♀ 10.0–10.6 mm (avg. 10.3 mm); wing span to body length ratio (avg.): ♂ 0.76; ♀ 0.90.

Male (Fig. 16).

Head: Orange-yellow colour, with silver-white pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation (absent in ♀); ocellar tubercle slightly more elevated than frons,

black with dark setulae, shorter than pale setulae on vertex; vertex silver-white pruinose, with long pale setulae; ocelli similar in size; ocellar tubercle in front of dorsal margin of eye, margin less indented than in ♀; vertex narrower than in ♀; dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-white pruinosity as rest of head, except for paired narrow dark brown, almost black (taller in ♀) markings with extreme dorsal edge with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput with short pale setulae on dorsal margin and on rest of upper surface, lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar pale ventral setulae (with some scattered dark setulae); frons silver-white up to narrow area before eyes touch, when viewed dorsally, dark velvety-brown when viewed anteriorly; frons at narrowest where eyes touch, widening towards antennal base; frons bare; face and gena silver-white with pale setulae, clypeus orange with silver-white pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove; scape, pedicel, 1st flagellomere orange-yellow, 2nd flagellomere brownish; 1st flagellomere reniform, only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape with pale dorsal setulae, pedicel with dark dorsal and ventral setulae, similar in size, palpus orange-yellow, well-developed, ca 0.5× length of proboscis; proboscis more slender than that of ♀, comparatively same length as that of ♀ in relation to head; proboscis mostly orange-yellow, except for ventral surface that is light brown, proboscis with long pale setulae, with some setulae ventrally; some scattered small dark setulae on proboscis and palpus.

Thorax: Majority of surface orange-yellow, dorsal surface of scutum and scutellum with dark setulae, pleura with longer pale setulae; scutum with postsutural setulae similar to presutural setulae, except for longer prescutellar setulae; postpronotal lobe slightly lighter orange-yellow colour compared to rest of thorax, with pale setulae; area behind postpronotal lobe brownish; scutum and scutellum uniformly orange-yellow without any vittae; pleura generally orange-yellow in colour with except for anepisternum that has a dark brown marking; anepisternum, katepisternum and katatergite lightly silver-white dusted; notopleuron with long pale and dark setulae; area surrounding posterior spiracle orange-yellow, postspiracular scale orange-yellow, same colour as rest of thorax; proepisternum, pronotum orange-yellow; anterior spiracle bare posteriorly; proepimeron, proepisternum with pale setulae, anepisternum with pale setulae; katatergite with pale setulae; rest of pleura bare.

Legs: Coxae orange-yellow; fore and mid coxae with long pale setulae on surface, hind coxa with long pale setulae on anterior and lateral apical edges, and with well-developed anterior apical point; all trochanters same orange-yellow colour as rest of body with some scattered short pale setulae; all femora uniformly orange-yellow, with hind femur with darker colouration medially; mid and hind femora with small anterior apical dark mark; fore and hind tibiae dark brown, mid tibia darker orange-yellow than mid femur; hind basal tarsus proximally and hind tibia apically lighter orange-brown; fore and hind tarsi dark brown, similar in colour to respective tibia, mid tarsi darker orange-yellow than mid tibia; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium

ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore and mid femora covered with pale setulae on all surfaces except for dorso-apical surface with short dark setulae, hind femur with mixed long pale and dark setulae on dorsal and ventral surfaces, distoventrally with long pale setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark dorsal setulae; hind tarsal segments 0.9–1.0× as long as hind tibia; tibial spur formula 1:2:2.

Wing: Slight light brown suffused appearance; with a slightly yellow-brown stigma over area of veins R_1 and R_{2+3} and cell r_1; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere almost entirely orange-yellow, with very short dark setulae.

Abdomen: Orange-yellow, tergites 2–4 with dark lateral margin, rest unmarked; sternites without any markings; tergites with black setulae on median-dorsal surface, with long pale setulae on lateral surface; sternites covered in long pale setulae; tergite 1 with weak median longitudinal suture.

Terminalia (Figs 58, 62): Epandrium and cercus orange-yellow with dark setulae, epandrium with a dark brown dorsal mark; cercus dark brown dorsally; hypoproct and hypandrium with pale setulae, gonostylus tapering with truncated apex, outer ventral surface of gonostylus base with 3 short setulae, inner edge with a protrusion with 4 setulae, apical third of gonostylus with microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner surface of upper half with short setulae; gonocoxite with microtrichia between setulae; parameral apodeme short, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme ca 1.2× length of gonocoxite and similar in length to ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites, endoaedeagal process widening apically with a slight bilobed appearance.

Female (Fig. 17): Similar to ♂ except for the following:

Head: Dichoptic; lateral edge of eye without indentation (slight in ♂); ocellar tubercle with shorter dark setulae than in ♂; dorsal margin of eye more indented than in ♂; vertex wider than in ♂, dark directly behind ocellar tubercle up to posterior of eye margin (in anterior view), appearing silver-white when viewed dorsally; dorsal inner edge of eye with paired dark markings, but only visible when viewed anteriorly, otherwise area similarly silver-white pruinose; occiput with same silver-white pruinosity as rest of head, except for paired dark brown, almost black (taller than in ♂) markings on upper occiput, abutting posterior margin of eyes, flanking vertex, running down to occipital foramen; frons velvety-black from ocellar tubercle down to lower half of eye, silver-white down to antennal base; frons dark setulose on velvety-black area, pale setulose on silver-white pruinose area (♂ bare), at narrowest 1.86× width of ocellar tubercle, widening slightly towards antennal base; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; proboscis stout compared to ♂, with dark ventral colour; 1st flagellomere comparatively much larger than in ♂.

Thorax: Scutum more densely setulose than in ♂.

Legs: Fore tarsi symmetrical; setulae of femora overall shorter (compared to ♂) except for preapical area of fore femur that has long pale setulae; hind femur with mix of short pale and dark setulae; hind tarsal segments 0.9× as long as hind tibia.

Wing (Fig. 40): Slightly darker suffused compared to ♂; vein *CuA* with some slightly darker suffusion around it.

Abdomen: Tergites with short dark setulae more widely spread, including on later setulae, interspersed between long pale setulae; tergites 2–8 with a dark lateral marking, much darker on terminal segments; tergites 7 and 8 densely dark setulose.

Terminalia (Fig. 79): Cercus orange-yellow with pale setulae; genital fork with distal apodeme narrow, forked; median lobe with gradual emargination; paired apical lobes with somewhat slender appearance, widening towards apex, inner surface with clustered microtrichia at apex; arms gradually rounded; three oval and sclerotized spermathecae.

Etymology. Named after the collector Dr Robert (Bob) Copeland, for his contribution to Dipterology in the Afrotropical Region. Noun in the genitive case.

Distribution. Kenya, Togo, Uganda.

***Suragina dimidiatipennis* (Brunetti, 1929)**
Figs 18, 43

Atrichops dimidiatipennis Brunetti, 1929: 3.
Suragina dimidiatipennis: Stuckenberg 1980: 313.

Type material examined. [from digital photographs] ***Holotype*:** Nigeria • 1♀; Ibadan; [07°23.78'N, 03°55'E]; 27 Mar. 1923; Presented by Imperial Bureau of Entomology British Museum; 1484, 1929–48; (NHMUK 014064158).

***Paratype*:** Nigeria • 1♀; So [Southern] Nigeria; Ibadan; [07°23.78'N, 03°55'E]; 10 Aug. 1920; Presented by Imperial Bureau of Entomology British Museum; 1484, 1929–48; (NHMUK 014064159).

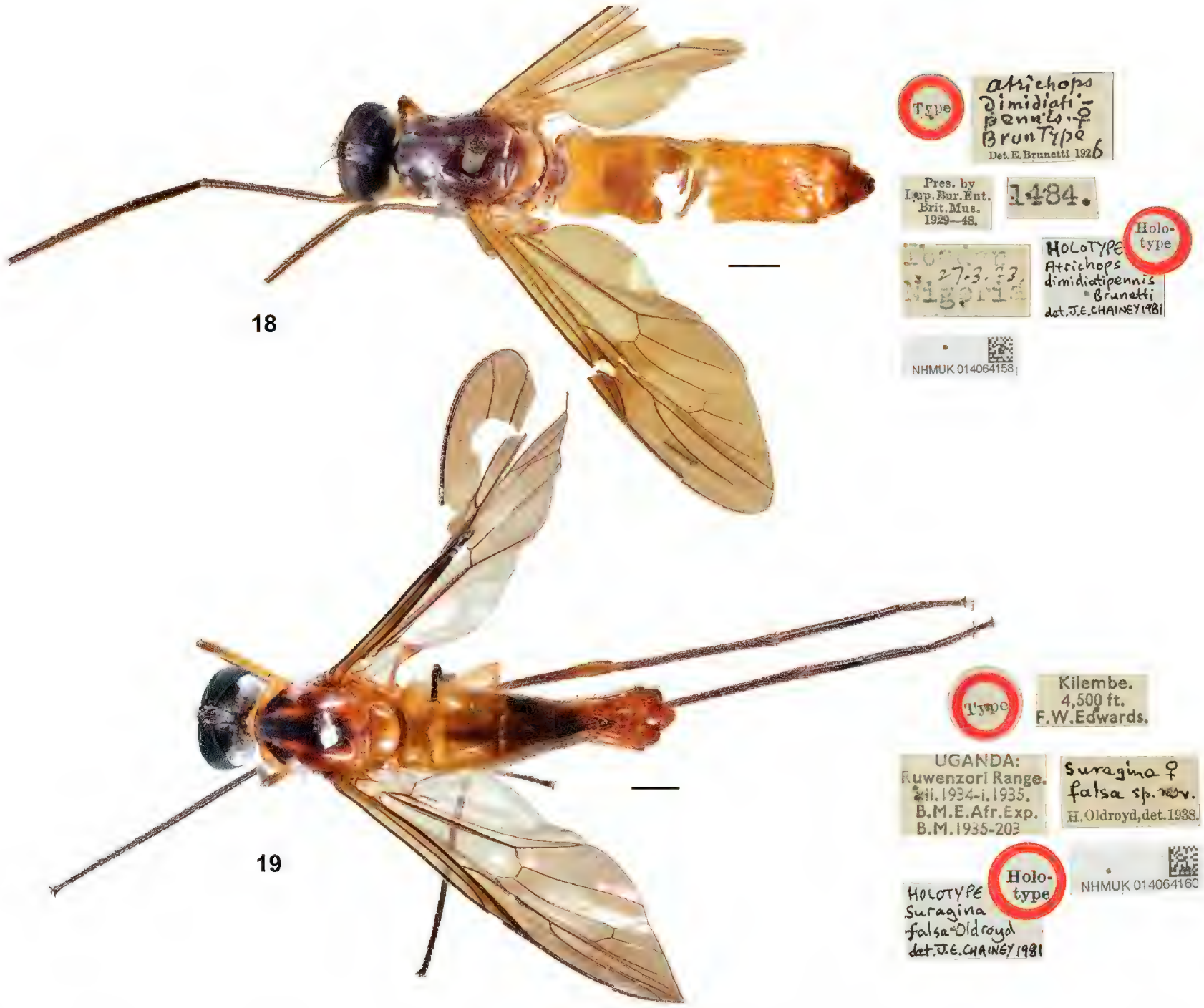
Diagnosis. Head and thorax with dark brown ground colour and silver-grey pruinosity. Abdomen is orange-yellow to dark orange, brown on terminal segments. Tergites 2 and 3 with large brown markings. Wing brown suffused on apical half with dark brown stigma and substigmal marking (Fig. 43), in this regard, it is most similar to *S. zombaensis* Muller, sp. nov., but differs from it by having wide subrectangular markings on the upper occiput compared to narrow markings in *S. zombaensis* Muller, sp. nov., and a marked difference in abdominal colour and patterning, with the latter having medial longitudinal blackish markings with bluish-grey pruinosity that are completely absent in *S. dimidiatipennis*.

Redescription. (Based on digital photographs of ♀ Holotype and ♀ paratype)

Measurements (♀ n = 2): Wing span: 7.9–8.8 mm (avg. 8.4 mm); body length: 10.3 (avg. 10.3 mm); wing span to body length ratio (avg.): 0.81.

Female (Fig. 18).

Head: Dark brown ground colour, with silvery-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any visible indentation; ocellar tubercle slightly elevated, visible in profile, dark setulose, silvery-grey pruinose; vertex silvery-grey pruinose, with dark setulae; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal



Figures 18, 19. *Suragina* Walker spp. dorsal habitus: *S. dimidiatipennis* (Brunetti): **18** ♀ holotype (NHMUK 014064158); *S. falsa* Oldroyd: **19** ♀ holotype (NHMUK 014064160). **18, 19** Copyright NHMUK under CC BY 4.0. Scale bars: 1 mm.

margin of eye; dorsal inner edge of eye without discernible paired dark markings, same silvery-grey pruinose as rest of head; occiput with same silvery-grey pruinosity; paired widely-shaped blackish-brown subrectangular markings with dark setulae on upper occiput running down to occipital foramen, abutting posterior margin of eyes, flanking vertex; upper occiput otherwise with pale setulae; lower occiput with lateral margins and medial area with long pale setulae, these continue ventrally on head to mouthparts that have pale ventral setulae; frons silvery-grey pruinose with short dark setulae on lower half, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening only very slightly towards antennal base; frons with long dark setulae; face and gena silvery-grey pruinose, with pale setulae; clypeus with silvery-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 1× width of scape, with obvious longitudinal groove running up into lower frons; scape, pedicel mostly orange, dorsally orange-brown, otherwise with some silvery-grey pruinosity; 1st flagellomere entirely orange; 2nd flagellomere brown; scape appearing larger than pedicel when viewed dorsally; 1st flagellomere reniform, 2× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus orange with mostly darker setulae, and some interspersed pale setulae; palpus

ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis orange-yellow with dark setulae and some paler shorter setulae.

Thorax: Scutum dark brown with central vitta, delineated by silver-grey pruinosity on presutural surface; central vitta ending before scutellum; scutum with large paired presutural dark brown markings behind postprontal lobe; pronotum yellowish-brown with pale setulae; postpronotal lobe brown, base same dark brown as proceeding presutural scutal area; scutellum with short dark setulae; notopleuron appearing silver-grey pruinose when viewed dorsally, setulae dark; postalar wall and postalar callus orange-brown; scutellum orange-yellow with short dark setulae; scutum generally with short dark setulae with postsutural setulae somewhat longer; majority of pleura dark brown, except for anepisternum, katepisternum and meron with silver white pruinosity; pruinose pleura have long pale setulae; anepimeron setulae unknown; anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings yellow, bare; postspiracular scale brownish; postnotum dark brown, silver-grey pruinose on lateral margins.

Legs: Fore coxa orange-yellow, mid and hind coxae dark brown; fore coxa with long pale setulae on anterior and posterior surfaces, anterior apex with short dark setulae; mid coxa with dark setulae on anterior surface; hind coxa with dark setulae on anterior surface as well as dark setulae surrounding well-developed anterior apical point, lateral apical edges also with long dark setulae; fore trochanter orange-yellow with short pale setulae, mid trochanter dark brown, hind trochanter missing; fore and mid femora orange-yellow; hind femur missing (original description has hind femur with basal and apical third "brownish-yellow" interpreted here as orange-yellow, and middle third "black" interpreted here as blackish-brown); fore tibia blackish-brown; mid tibia darker orange-yellow than that of mid femur; hind tibia and tarsi missing (original description has hind tibia and tarsi "black", interpreted here dark brown based of photos); fore tarsi dark brown, mid tarsi yellowish-brown; fore tarsal claws and pulvilli missing, not described; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and hind femora with pale setulae, some darker setulae on apical dorsal surface of fore femur; fore and hind femora with long pale setulae on apical ventral and posteroventral surfaces; mid femur with long pale setulae on ventral surface; fore and mid tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsi missing not measured; tibial spur formula unknown.

Wing (Fig. 43): Brown suffused on apical half; darker brown stigma over apex of veins R_1 and R_{2+3} and cells *sc*, r_1; darker suffused substigmal marking over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cell *bm* hyaline; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk yellow, knob light brown, with some short and dark setulae. Holotype (NHMUK014064158) with an elongated hyaline marking in cell r_{2+3}, paratype (NHMUK014064159) without such a hyaline marking.

Abdomen: Overall orange-yellow to dark orange colour; tergite 1 orange-yellow; tergites 2 and 3 with large brown markings taking up majority of surface, somewhat darker on lateral margins as well; tergites 4 and 5 orange-yellow; remaining tergites orange-brown, with posterior margins of especially tergites

7 and 8 darker; sternites orange-yellow, with sternites 3 and 4 covered in darker marking; rest of sternites orange-yellow; tergites with short dark setulae dorsally, and long pale setulae laterally; sternites with short pale setulae; tergite 1 medially with a longitudinal suture.

Terminalia: Cercus dark brown with pale setulae; internal structures unknown, type material not dissected.

Distribution. Nigeria.

Suragina disciclara (Speiser, 1914)

Atherix disciclara Speiser, 1914: 3.
Suragina disciclara: Stuckenberg 1980: 313.

Type material. Not examined (see remarks), no additional material available.

Remarks. The type of *S. disciclara* (Speiser, 1914) was held in the collection of Paul Speiser and was subsequently destroyed in 1945 during the World War II bombing of Dresden, Germany by Allied forces (Evenhuis 2024). The only associated data with it is that it was female and collected on 25 February 1913 from Tiko near Viktoria [now Limbe] in Cameroon.

The characters mentioned in the original description, especially that of the frons having a "sammetschwarz" velvety-black upper half and the lower half "glänzend" interpreted as shiny or silvery, in combination with the general *Suragina*-like combination of characteristics leaves no doubt that the species belongs in the genus. However, the original description in German is not sufficient to distinguish the species from other Afrotropical species based on the text alone and subsequently the species is excluded from the identification key in this paper. Additional material will need to be collected from the type locality Tiko.

Suragina falsa Oldroyd, 1939

Figs 4, 19, 44

Suragina falsa Oldroyd, 1939: 15; Stuckenberg 1980: 313.

Type material examined. [from digital photographs] ***Holotype*:** 1♀; Uganda; Western Region; Ruwenzori [Rwenzori] Range, Kilembe; [00°11.8833'N, 30°00.8167'E]; 4500 ft [1372 masl]; Dec. 1934–Jan. 1935; F.W. Edwards leg.; B.M.E. Afr.Exp.; BM135-203; NHMUK 014064160 (NHMUK).

***Paratypes*:** 1♀; same data as holotype; NHMUK014064161 (NHMUK); 2♀; Western Region; Ruwenzori [Rwenzori] Range, Namwamba Valley; [0°14.245'N, 29°58.13'E]; 6500 ft [1981 masl]; Dec. 1934–Jan. 1935; F.W. Edwards leg.; B.M.E. Afr.Exp.; BM135-203; (2♀: NHMUK014064162, 014064163) (NHMUK).

Diagnosis. An orange-yellow species, the scutum with central blackish-brown vitta, and additional pre- and postsutural dark brown markings. Notopleural area with a brown marking and silver-grey pruinosity (Fig. 4). It is most similar to *S. monogramma* (Bezzi, 1926), but that species has only a single central vitta without any additional pre- or postsutural dark markings. *Suragina monogramma*

also has its tibia brownish-yellow to orange-yellow compared to *S. falsa* that has its tibia dark brown, almost black.

Redescription. (Based on digital photographs of ♀ Holotype and 3♀ paratypes.)

Measurements (♀ n = 3): Wing span: 8.0–10.5 mm (avg. 9.3 mm); body length: 8.6–10.4 mm (avg. 9.5 mm); wing span to body length ratio (avg.): 0.98.

Male. Unknown.

Female (Fig. 19).

Head: Dark brownish-black ground colour, with silvery-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle slightly elevated, visible in profile, dark setulose, silvery-grey pruinose; vertex silvery-grey pruinose, with dark setulae, vertex appearing blackish dark brown when viewed posteriorly; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye; dorsal inner edge of eye without discernible paired dark markings, same silvery-grey pruinose as rest of head; occiput with same silvery-grey pruinosity; paired subrectangular blackish-brown markings with dark setulae on upper occiput running down to occipital foramen, abutting posterior margin of eyes, flanking vertex; upper occiput otherwise with pale setulae; lower occiput with lateral margins and medial area with long pale setulae, these continue ventrally on head to mouthparts that have pale ventral setulae; frons silvery-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening only very slightly towards antennal base in paratypes; frons with dark setulae; face and gena silvery-grey pruinose, with pale setulae; clypeus with silvery-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 1× width of scape, with slight longitudinal groove running between; scape, pedicel mostly orange, dorsally orange-brown, otherwise with some whitish pruinosity; 1st flagellomere entirely orange; 2nd flagellomere brown; scape and pedicel of similar size; 1st flagellomere reniform, 2× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus orange with mostly darker setulae, and some interspersed pale setulae (Namwamba Valley paratype has outer lateral margins of palpus black with some white pruinosity and with dark setulae throughout, apical half of proboscis darker than in other specimens); palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis darker brownish-orange on apical half, orange on basal half with long pale setulae dorsally, dark setulae ventrally.

Thorax (Fig. 4): Scutum dark orange-yellow with central blackish-brown vitta with silver-grey pruinosity on presutural surface; central vitta extends to before and sometimes reaching scutellum (especially pronounced in paratype from Namwamba Valley); scutum with large paired presutural dark brown markings that do not extend into notopleuron; scutum also with smaller postsutural dark brown markings (more elongated appearance in paratype from Namwamba Valley), taking up half of posterior surface of scutum, with remaining posterior surface orange-yellow; scutum generally with short dark setulae with postsutural setulae somewhat longer; pronotum yellow with pale setulae; postpronotal

lobe yellow, with short dark setulae; notopleuron appearing silver-grey pruinose when viewed dorsally, more yellow when viewed in profile; notopleural setulae dark; postalar wall and postalar callus orange-yellow; scutellum orange-yellow with short dark setulae; majority of pleura orange-yellow with some whitish pruinosity, except for anepisternum and katepisternum that is blackish-grey with white pruinosity and meron that is dark brown with similar pruinosity; pruinose pleura with long pale setulae; anepimeron with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings yellow, bare; postspiracular scale orange-yellow; postnotum brown, yellow on lateral margins.

Legs: Coxae orange-yellow with mid coxa brown on inner anterior surface; fore coxa with long pale setulae on anterior and posterior surfaces; mid coxa with dark setulae on anterior surface; hind coxa with dark setulae on anterior surface as well as dark setulae surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; all trochanters orange-yellow with short pale setulae, mid trochanter with dark hind margin; fore and mid femora yellow, fore femur with apical dorsal surface dark brown; hind femur yellow on apical and basal third, dark brown medially (Namwamba Valley paratypes with larger dark brown medial section); fore and hind tibiae entirely blackish-brown; mid tibia and first two tarsal segments yellow, rest of tarsi blackish-brown; fore tarsal claws and pulvilli symmetrical, pulvilus and empodium of similar size; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; all femora with pale setulae, some darker setulae on apical dorsal surface of fore femur; all femora with long pale setulae on apical ventral and posteroventral surfaces; mid femur with long pale setulae on ventral surface; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsal segments 1.1× as long as hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 44): Brown suffused on apical half; darker brown stigma over apex of veins R_1 and R_{2+3} and cells *sc*, r_1; darker suffused substigmal marking over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cell *bm* hyaline; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk yellow, knob light brown, with some short and dark setulae; paratype NHMUK014064163 from Namwamba Valley with wing appearing uniformly dark brown, whereas paratype NHMUK014064162 from same locality has similar wings except centres of each wing cell are hyaline.

Abdomen: Overall orange-yellow to dark orange colour; tergites 1–3 with a brown median marking, tergites 2 and 3 with narrow, weakly developed lateral markings; tergites 4 and less so 5 with a much darker dorsal appearance compared to preceding segments; remaining tergites dark orange; sternites with similar colour to tergites, except for sternites 4 and 5 that are distinctly dark brown; tergites with short dark setulae dorsally, and long pale setulae laterally; sternites with short pale setulae; tergite 1 medially with a longitudinal suture.

Terminalia: Cercus dark orange with dark setulae; internal structures unknown, type material not dissected.

Distribution. Uganda.

***Suragina freidbergi* Muller, sp. nov.**
https://zoobank.org/A55946FD-E8CC-49A8-9EAD-F67317C9BA11
Figs 8, 20, 21, 45, 63, 67, 80

Type material examined. ***Holotype*:** Malawi • 1♂; Southern Region; Mulanje Mountain [Mulanje Massif] nr. Likabula; [15°56.983'S, 35°35.617'E]; 26–27 Oct. 1983; A. Freidberg leg.; (NMSA-DIP 158423).

***Paratypes*:** • 3♀; same data as holotype; (NMSA-DIP 158426, 158425, 158424) • 2♀; Southern Region; Zomba Plateau, Kuchawe Trout Farm; 15°21.2333'S, 35°18.1'E; 1530 masl; 8–11 Nov. 2016; A.H. Kirk-Spriggs & B.S. Muller leg.; stream, montane evergreen forest; Malaise trap; (BMSA(D)91210, 91208) • 5♀; Southern Region; Zomba Plateau, William's Falls; 15°20.85'S, 35°17.9167'E; 1583 masl; 15–19 Nov. 2016; A.H. Kirk-Spriggs & B.S. Muller leg.; stream bed, montane evergreen forest; Malaise trap; (BMSA(D)92158, 92159, 92162, 92160, 92161) • 1♂; Southern Region; Mulanje Dist. Mulanje mnt. at:; 15°56.1667'S, 35°31.2'E; 1061 masl; 12–14 Oct. 2016; A.H. Kirk-Spriggs & B.S. Muller leg.; stream bed, miombo woodland; Malaise trap; (BMSA(D)92376).

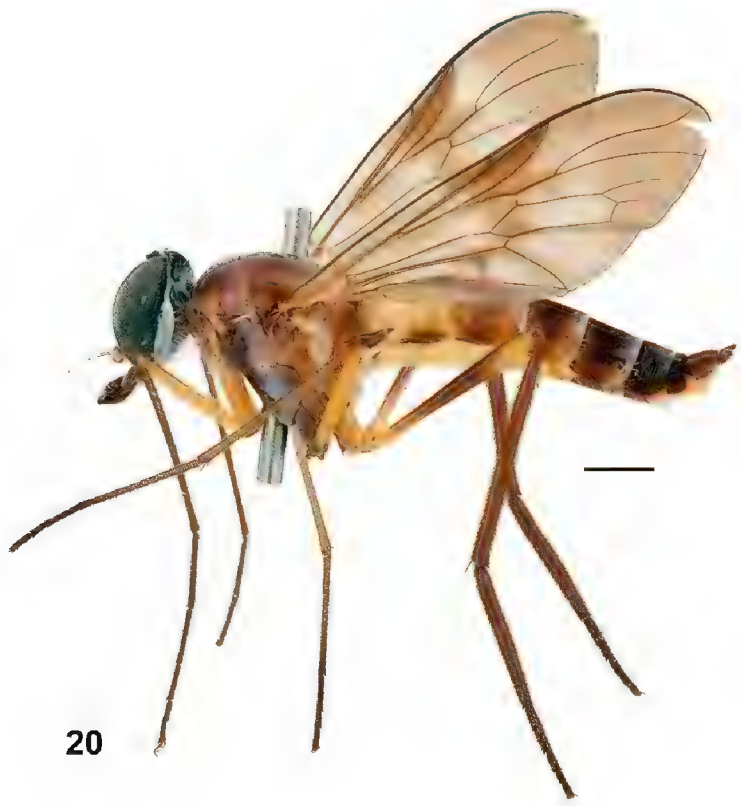
Holotype deposited in NMSA and paratypes deposited as per listed institutional codens in citations above: BMSA and NMSA.

Diagnosis. *Suragina freidbergi* Muller, sp. nov. has an overall yellowish-brown to brown appearance, with the males typically lighter in colour than the females (Fig. 20 vs Fig. 21). The pleura are brown with mostly bluish-grey pruinosity, the scutum dark brown to black with two bluish-grey pruinose dorsocentral vittae, the notopleuron with similar pruinosity (Fig. 8). The prescutellar area bluish-grey pruinose. It is most similar to *S. zombaensis* Muller, sp. nov. in its general appearance, but differs from it in having at most the apical third of the wing brown suffused, the preceding area with hyaline patches (Fig. 45), compared to *S. zombaensis* Muller, sp. nov. that has the majority of the apical half of the wing brown suffused (Fig. 54). Additionally, *S. freidbergi* Muller, sp. nov. has the scutellum yellow on at least apical half (Fig. 8) compared to *S. zombaensis* Muller, sp. nov. that has the scutellum dark brown with only the apical margin yellow.

Description. ***Measurements*** (♂ n = 2, ♀ n = 2): Wing span: ♂ 7.2–7.5 mm (avg. 7.35 mm); ♀ 8.6–9.3 mm (avg. 8.95 mm); body length: ♂ 8.9–9.0 mm (avg. 8.95 mm); ♀ 9.0–9.5 mm (avg. 9.25 mm); wing span to body length ratio (avg.): ♂ 0.94; ♀ 0.97.

Male (Fig. 20).

Head: Blackish-brown ground colour, with bluish-grey pruinosity on majority of head; eye bare; holoptic; ommatidia on lower and upper quarter of eye smaller than those on rest of eye; lateral edge of eye with slight indentation, and an apparent tubercle next to indentation; ocellar tubercle barely visible in profile, blackish-brown in colour with slight bluish-grey pruinosity and short dark setulae; vertex blackish-brown with bluish-grey pruinosity and long dark setulose; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye, not placed as deeply towards middle of head as in ♀; dorsal inner edge of eye abutting ocellar tubercle; occiput with same bluish-grey pruinosity as rest of head; paired narrow rectangular black markings with short dark setulae on upper occiput widening towards lateral margin of head, abutting posterior margin of eyes, flanking vertex; upper occiput with pale setulae; lower occiput with long pale setulae; genal area bluish-grey with long pale setulae,



Figures 20–22. *Suragina* Walker spp. lateral habitus: *S. freidbergi* Muller, sp. nov.: **20** ♂ holotype (NMSA-DIP 158423) **21** ♀ paratype (NMSA-DIP 158424); *S. liberiaensis* Muller, sp. nov.: **22** ♂ holotype (NMSA-DIP 158443). Scale bars: 1 mm.

these continue ventrally on head to mouthparts that have similar long ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to before lower half of eye when viewed anteriorly, when viewed anteroventrally entire frons appears blackish-brown with a slight velvety appearance; frons widening from where eyes touch down to antennal base; frons with short pale setulae; face bluish-grey with pale setulae; clypeus dark brown with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by a deep transverse suture, similar to lateral sutures; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.75× width of scape, with slight longitudinal groove running between; scape dark brown and pedicel orange-brown, both with silvery pruinosity; 1st flagellomere orange-yellow, with sparse silvery pruinosity; 2nd flagellomere dark brown; scape and pedicel of similar size; 1st flagellomere reniform, ca 1.5× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only pale dorsal setulae; palpus brown with dense bluish-grey pruinosity, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis slightly shorter than head height; proboscis dark orange-brown in co-

lour, prementum orange-yellow, proboscis with long pale setulae ventrally and darker setulae dorsally.

Thorax: Scutum brown, mostly with short dark setulae, with two feint dorsocentral bluish-grey pruinose vittae in some specimens running from pronotum to before scutellum, joining to form a bluish-grey pruinose patch, in other specimens vittae are diffused, ending before transverse suture (Fig. 8); pronotum orange-brown with bluish-grey pruinosity and short pale setulae; postpronotal lobe orange-yellow and appearing slightly browner dorsally, with sparse grey pruinosity; setulae short pale; notopleuron bluish-grey pruinose with pale setulae anteriorly and longer dark setulae posteriorly; postalar wall and postalar callus orange-brown with slight bluish-grey pruinosity supra-alar area with dark setulae, postalar callus with some short pale setulae interspersed between dark setulae; scutellum yellow with long dark setulae; majority of pleura brown with bluish-grey pruinosity, except for anepimeron, anatergite, katatergite and katepimeron orange-yellow; proepisternum, proepimeron, katatergite and katepisternum with long pale setulae; anatergite and meron bare; anterior and posterior spiracles whitish-yellow, bare; postspiracular scale dark brown; postscutellum orange-brown.

Legs: Fore coxa yellow, mid coxa brown, blackish-brown anteriorly with a slight greyish pruinosity, hind coxa brownish-yellow; all coxae with mostly long pale setulae; fore coxal setulae entirely pale or with at most a couple of dark setulae apically; mid coxal setulae mixed pale and dark; hind coxal setulae long, and pale or dark on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; all trochanters brownish-yellow with short pale and dark setulae; fore and mid femora almost entirely yellow, except for slightly brown apex; hind femur yellow with light brown to brown median band; fore and hind tibiae brownish-yellow, mid tibia yellow; fore and hind tarsi brown, mid basitarsus yellow; with remaining tarsi brown; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore femur overall with short pale setulae, with long pale setulae on posteroventral surface; mid femur with long pale setulae on ventral surface, otherwise with short pale setulae; hind femur with a mix of pale and dark setulae on dorsal and ventral surfaces, base of femur with pale setulae; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; hind leg overall stouter than remaining legs; hind tarsal segments 0.8–1.0× as long as hind tibia tibial spur formula 0:2:2.

Wing: Hyaline; dark brown stigma over area of veins R_1 and R_{2+3} and cell r_1; dark suffused substigmal marking running down from stigma over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; apical half of wing suffused with hyaline patches in cells r_{2+3}, r_4, r_5, discal cell, cells m_3 and m_4; some dark suffusion over veins *CuA* and *CuP*; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed at wing margin, cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk yellow, knob dark brown, with a few short and dark setulae.

Abdomen: Overall brownish-yellow in colour; tergite 1 light brownish-yellow with a dark subtriangular dorsal marking surrounded by bluish-grey pruinosity; tergites 2–5 each with a dark dorsal marking covering majority of dorsal surface, less prominent on tergite 2 giving it a slight fenestrated appearance con-

trasting to brownish-yellow colour; tergites 2–5 also with lateral marginal dark marking; tergites 3–5 with grey pruinose band along posterior margin; tergite 1 medially without a longitudinal suture; tergites with dark setulae dorsally, and long pale setulae on lateral margins; sternites yellowish, with some irregular dark markings towards terminal segments; sternites with long pale setulae.

Terminalia (Figs 63, 67): Epandrium and cercus dark brown with dark setulae; gonocoxite, hypoproct and hypandrium with pale setulae; gonostylus tapering with truncated apex, outer edge of gonostylus with short setulae, inner edge with protrusion with 4 setulae, apical third of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner surface of upper half with short setulae, lower ventral surface similarly long setulose; gonocoxite with microtrichia between setulae; parameral apodeme with rounded apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly longer than ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites, apex of tines not extending out past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 21): Similar to ♂ except for the following:

Head (Fig. 8): Dichoptic; ommatidia of similar size; lateral edge of eye without any indentation, but also with apparent tubercle as in ♂; ocellar tubercle blackish-brown with brownish-grey pruinosity (bluish-grey in ♂); anterior ocellus slightly larger in size than posterior pair; ocellar tubercle placed deeper in front of dorsal margin of eye compared to ♂; dorsal inner edge of eye separated from ocellar tubercle by paired silver-grey markings, appearing to extend down from vertex; genal area with long pale setulae and one or two interspersed dark setulae (all pale in ♂) these continue ventrally on head to mouthparts that have a mix of similarly long pale and dark ventral setulae; frons bluish-grey pruinose between lower half of eye down to antennal base, velvety-black from ocellar tubercle to lower half of eye when viewed anteriorly; frons widening only slightly from velvety-black patch towards antennal bases; frons with dark setulae on velvety-black upper half and pale setulae on lower grey half; face, gena and clypeus with bluish-grey pruinosity; face sparsley populated with long pale setulae, face separated anteriorly from clypeus by transverse suture, (less prominent than in ♂); antennal bases separated ca 0.5–0.8× width of scape, with slight longitudinal groove running between; 1st flagellomere ca 1.75× size of pedicel; proboscis ca same length as head height; proboscis ventrally with both long pale and dark setulae.

Thorax (Fig. 8): Scutum blackish-brown and overall darker than in ♂ and more setulose, posterior half of scutum additionally with long pale setulae; pronotum dark brown with bluish-grey pruinosity and short pale setulae; postpronotal lobe dark brown with greyish pruinosity on anterior surface (compared to ♂ with dorsal surface also slightly pruinose), pale setulose; notopleuron with same colouration as in ♂, however, more densely setulose in comparison; postalar wall and postalar callus dark brown compared to orange-brown in ♂, and more setulose; scutellum entirely orange-yellow, or orange-yellow on apical half up to margin, and basally dark brown with slight bluish-grey pruinosity, with dark setulae; pleura similar to that of ♂.

Legs: Fore coxa yellow as in ♂ but browner anteriorly and sparsely greyish pruinose; hind coxa more widely brown in comparison to ♂; coxal setulae similar to ♂; femora similar in patterning as ♂, but markings dark brown, almost black instead of light brown to brown; fore and hind tibiae, as well as tarsi blackish, mid tibia brownish-yellow, mid basitarsus brownish-yellow; with remaining tarsi dark brown to blackish (tibia and tarsi similar in patterning to ♂, just darker); fore tarsal claws symmetrical; overall leg setation similar to ♂ except generally shorter; hind tarsal segments 0.9–1.0× as long as hind tibia.

Wing (Fig. 45): Similar to ♂.

Abdomen: Tergite 1 more densely bluish-grey pruinose than in ♂, medially with a longitudinal suture; tergite 2 in some specimens similar to ♂ with dark longitudinal marking, but surrounded by bluish-grey pruinosity instead of brownish-yellow ground colour, in others (NMSA-DIP 158425) entirely dark brown, as proceeding tergites; tergites 3–7 dark brown with dark dorsal markings barely discernible, posterior margins with similar grey pruinose bands as in ♂; tergite 1 with long pale setulae on pruinose surface, and short dark setulae on dark brown surfaces, tergites 2–6 with short pale setulae on posterior pruinose bands and short dark setulae on rest of surface; tergite 7 with short dark setulae; tergites 1–4 with long pale setulae on lateral margins, tergites 5–7 with dark setulae laterally; sternites similar to ♂ but with shorter pale setulae on surface.

Terminalia (Fig. 80): Cercus dark brown with pale setulae; genital fork with distal apodeme slender, apex truncated, unforked; median lobe with u-shaped emargination; paired apical lobes with somewhat slender appearance, widening toward apex, inner surface with clustered microtrichia at apex; arms gradually rounded; three oval and sclerotized spermathecae.

Etymology. Named after the late Dr Amnon Freidberg, in recognition of his contribution to Dipterology and as collector of much of the type material from Malawi. Noun in the genitive case.

Distribution. Malawi.

***Suragina liberiaensis* Muller, sp. nov.**

https://zoobank.org/2015C4F4-2088-4FCF-9A5E-644DB0C1844C

Figs 7, 22, 46, 81

Type material examined. *Holotype*: Liberia • 1♀; [Margibi]; [Harbel], Roberts Field; [6°04.91'N, 10°20.96'W]; 23 Jul. 1945; R.F Lawrence leg.; Briscoe Collection; (NMSA-DIP 158443).

***Paratypes*:** • 1♀; same data as holotype; (NMSA-DIP 158445) • 1♀; [Margibi]; [Harbel], Roberts Field; [6°04.91'N, 10°20.96'W]; 9 Jul. 1945; R.F Lawrence leg.; Briscoe Collection; (NMSA-DIP 158442) • 1♀; [Margibi]; [Harbel], Roberts Field; [6°04.91'N, 10°20.96'W]; 10 Jul. 1945; R.F Lawrence leg.; Briscoe Collection; (NMSA-DIP 158444).

Holotype and paratypes deposited in NMSA.

Diagnosis. An overall dark brown almost black species with only the legs partially yellow (Fig. 22). The upper occiput of head with large black markings running down to occipital foramen (Fig. 7). The thorax pruinosity and wing colouration similar to species such as *S. freidbergi* Muller, sp. nov. and

S. zombaensis Muller, sp. nov., but differs by the scutellum being blackish without any yellow margins (Fig. 7). Abdomen dark brown, somewhat more yellowish from sternite 5 onwards.

Description. ***Measurements*** (♀ n = 3): Wing span: 7.1–7.9 mm (avg. 7.6 mm); body length: 8.3–9.0 mm (avg. 8.7 mm); wing span to body length ratio (avg.): 0.87.

Male. Unknown.

Female (Fig. 22).

Head (Fig. 7): Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle elevated, visible in profile, dark setulose, bluish-grey pruinose; vertex bluish-grey pruinose, with pale setulae; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye; dorsal inner edge of eye without discernible paired dark markings, same bluish-grey pruinose as rest of head; occiput similarly bluish-grey pruinose; paired black markings with dark setulae on upper occiput running down to occipital foramen, abutting posterior margin of eyes, flanking vertex; upper occiput otherwise with pale setulae; lower occiput with lateral margins with long dark setulae, and long pale setulae medially, these continue ventrally on head to mouthparts that have mix of pale and dark ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening only slightly towards antennal base; frons with mixed pale and dark setulae; face and gena bluish-grey with pale and darker setulae respectively; clypeus black with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 1× width of scape, with slight longitudinal groove running between; scape, pedicel orange to orange-brown with white pruinosity; 1st flagellomere entirely orange or at least orange at base, brown apically, 2nd flagellomere brown; scape and pedicel of similar size; 1st flagellomere reniform, 2× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus velvety-black on apical half with scattered white pruinosity, orange on basal half, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis brownish on apical half, orange on basal half with long pale setulae dorsally, dark setulae ventrally.

Thorax (Figs 7): Scutum shining black with two feint dorsocentral bluish-grey pruinose vittae running from pronotum to before scutellum; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe orange-brown, slight bluish-grey pruinose with long pale setulae; notopleuron bluish-grey pruinose with long pale setulae just behind postpronotal lobe and rest of surface with dark setulae; postalar wall and postalar callus brown with bluish-grey pruinosity; scutellum brown with bluish-grey pruinosity, apical margin yellow; scutum generally with short dark setulae with postsutural setulae longer than presutural setulae, especially prescutellar setulae; majority of pleura bluish-grey pruinose, except for anatergite, anepimeron, part of meron brown; all pleura that are bluish-grey pruinose have long pale setulae; anepimeron with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings brownish-yellow, bare; postspiracular scale yellow-brown; postscutellum brown.

Legs: Fore coxa yellow with brown anterior surface, mid and hind coxae brown, all coxae with some degree of bluish-grey pruinosity on surface; fore coxa with dark setulae anteriorly and some interspersed with some pale setulae especially on posterior surface; mid coxa with long dark setulae on anterior surface, sparsely setulose along posterior margin; hind coxa with long dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; all trochanters yellow-brown with short pale setulae; fore femur yellow with apical dorsal surface dark brown, some brown markings at base; mid and hind femora dark brown, both yellow at extreme base and apex; fore and hind tibiae and tarsi dark brown, mid tibia and tarsi yellow; fore tarsal claws and pulvilli symmetrical, pulvilus and empodium of similar size; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; all femora with pale setulae, some darker setulae on dorsal surface of fore femur; all femora with long pale setulae on apical ventral and posteroventral surfaces; mid femur with long pale setulae on ventral surface; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsal segments 0.9–1.0× as long as hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 46): Brown suffused on apical half starting at R_{4+5} fork, continuing along edge of wing to anal lobe; darker brown stigma and substigmal marking over apex of veins R_1 and R_{2+3} and cells *sc*, r_1, base of cell r_{2+3}, crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cell *bm* hyaline; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk yellow, knob brown, with some short and dark setulae.

Abdomen: Entirely dark brown, tergites and sternites without apparent darker markings; tergites with short black setulae on dorsal surface, long pale setulae laterally; tergite 1 with bluish-grey pruinosity, medially with a longitudinal suture, remaining tergites with similar pruinosity when viewed at an angle; sternites with long pale setulae similar to those on tergites.

Terminalia (Fig. 81): Cercus dark brown with dark setulae; genital fork with distal apodeme ending broadly with shallow fork; median lobe with evenly curved edge; paired apical lobes slender, wider than arms, inner surface with clustered microtrichia at apex; arms gradually rounded; three shortly oval and sclerotized spermathecae.

Etymology. Named after the type locality country, Liberia. Feminine adjective in the nominative singular case.

Distribution. Liberia.

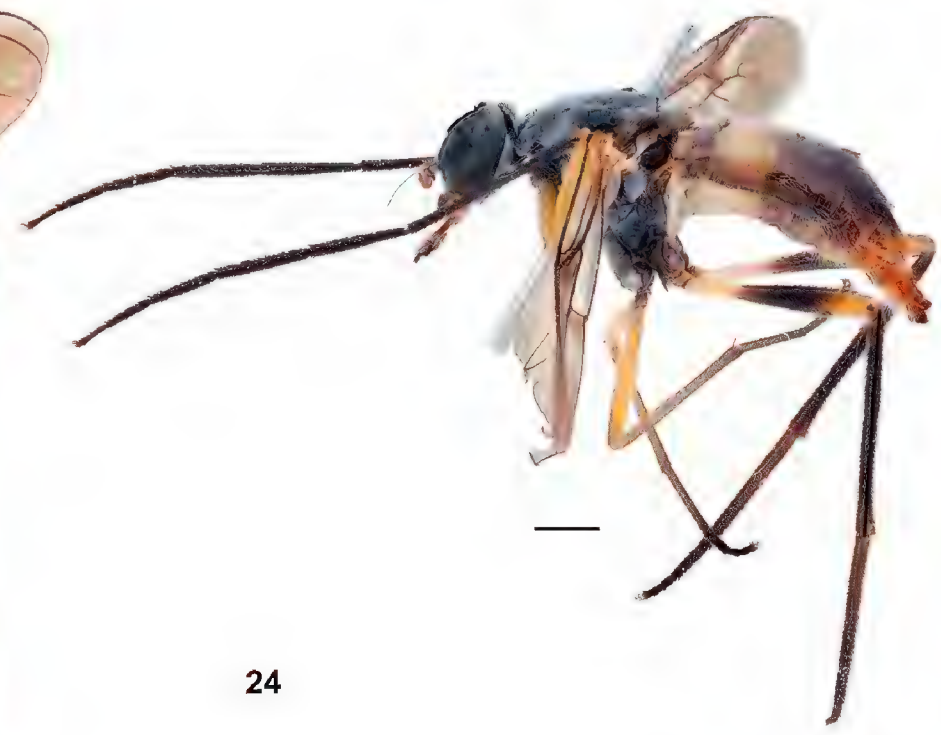
***Suragina malavaensis* Muller, sp. nov.**

https://zoobank.org/24B5E1A6-667A-49A8-A0BB-F6CBFE1DC162

Figs 6, 23, 24, 47, 64, 68, 82

Type material examined. *Holotype*: Kenya • 1♂; Western Province; Malava Forest; 00°27.8232'N, 34°51.4362'E; 1619 masl; 4–18 May 2017; R. Copeland leg.; Indigenous forest; Malaise trap; (ICIPE 3863-72).

***Paratypes*:** • 1♂; same data as holotype; (ICIPE) • 1♂; same data as holotype; 20 Apr.–4 May 2017; (ICIPE) • 1♀; same data as holotype; 1–15 Jun. 2017; (ICIPE).



Figures 23–26. *Suragina* Walker spp. lateral habitus: *S. malavaensis* Muller, sp. nov.: **23** ♂ holotype (ICIPE 3863-72) **24** ♀ paratype (ICIPE); *S. milloti* (Séguy): **25** ♂ (BMSA(D)58540) **26** ♀ (BMSA(D)58882). Scale bars: 1 mm.

Holotype and paratypes deposited at ICIPE.

Diagnosis. A species with well-developed subtriangular upper occipital markings (Fig. 6). The wing with a hyaline band between brown suffused apical third of wing and substigmal markings (Fig. 47). The species is most similar to *S. freidbergi* Muller, sp. nov., however the latter has the upper occipital marking more rectangular (Fig. 8) than triangular, and the mid femur entirely yellow compared to that of *S. malavaensis* Muller, sp. nov. that has its mid femur yellow with the base dark. Additionally, *S. malavaensis* Muller, sp. nov. has tergites 4 and onwards orange-yellow compared to that of *S. freidbergi* Muller, sp. nov. that has tergites 3–5 with posterior grey pruinose bands.

Description. ***Measurements*** (♂ n = 2, ♀ n = 1): Wing span: ♂ 7.1–7.6 mm (avg. 7.3 mm); ♀ 8.4 mm; body length: ♂ 8.2–8.4 mm (avg. 8.3 mm); ♀ 8.9 mm; wing span to body length ratio (avg.): ♂ 0.88; ♀ 0.94.

Male (Fig. 23).

Head: Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; holoptic, eyes touching; ommatidia of similar size; lateral edge of eye with indentation; ocellar tubercle elevated, visible in profile, pale setulose (rubbed bare in ♀), black in colour; vertex bluish-grey pruinose, with only pale setulae; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye, not placed as deeply towards middle of head as in ♀; dorsal inner edge of eye abutting ocellar tubercle; occiput with same bluish-grey pruinosity as rest of head; paired black markings with dark setulae on upper occiput widening towards lateral margin of head, abutting posterior margin of eyes, flanking vertex; upper occiput with similar dark setulae; lower occiput with long pale setulae, only genal area with dark setulae, these continue ventrally on head to mouthparts that have mix of pale and dark ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons widening from velvety-black patch towards antennal base; frons bare; face and gena bluish-grey, face with pale setulae; clypeus black with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by a deep transverse suture, similar to lateral sutures; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove running between; scape, pedicel same dark brown to blackish colour as rest of head, with white pruinosity; 1st flagellomere darker orange with similar pruinosity as other segments, 2nd flagellomere brown; scape and pedicel of similar size; 1st flagellomere reniform, ca 1.5× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus black on apical half with scattered white pruinosity, orange-yellow on basal half, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis mostly orange-yellow, with some infuscation on labellum, entire structure interspersed with some long pale and dark setulae.

Thorax: Scutum shining black with two feint dorsocentral bluish-grey pruinose vittae running from pronotum to before scutellum; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe dark brown, slight bluish-grey pruinose with long pale setulae, anterolateral margin of lobe lighter yellowish- to orange-brown (♀ colouring more apparent); notopleuron bluish-grey pruinose with long dark setulae and some pale setulae anteriorly; postalar wall and postalar callus dark brown with slight bluish-grey pruinosity, anterior of postalar callus orange-yellow; scutellum dark brown with bluish-grey pruinosity, entire margin orange-yellow from base to apex; scutum generally with short dark setulae with postsutural setulae longer than presutural setulae, especially prescutellar setulae; majority of pleura bluish-grey pruinose, except for anatergite, posterior of anepimeron, part of meron shiny blackish-brown; all pleura that are bluish-grey pruinose have long pale setulae; anepimeron with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings brownish-yellow, bare; postspiracular scale dark brown.

Legs: Fore coxa entirely yellow with only some scattered white pruinosity, mid and hind coxae blackish-brown, with bluish-grey pruinosity on surface; fore coxa with mostly pale setulae except for some dark setulae apically; mid coxa with long pale setulae on anterior surface, sparsely setulose along posterior margin; hind coxa with a mix of long pale and dark setulae on anterior edge

surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; fore and hind trochanters mostly dirty yellow with edges brown, mid trochanter dark brown with yellow edges, all trochanters with short pale setulae; fore femur entirely yellow; mid femur yellow with extreme base in some specimens shiny dark brown, otherwise yellow; hind femur dark brown except for yellow basal and apical sections; fore tibia and tarsi dark brown almost black; mid tibia and basitarsus yellow, apical tarsal segments appearing darker; hind tibia blackish-brown, with apex dark yellow; hind tarsi dark brown except for dark yellow basal part of basitarsus; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore femur with 2–3 long pale setulae grouped together on ventral surface, similar in appearance as rest of setulae; all femora with a mix of short pale and dark and long pale setulae on dorsal surfaces; fore femur with long pale setulae on apical ventral and posteroventral surfaces; mid femur with long pale setulae on ventral surface, without dark setulae dorso-apically (present in ♀); hind femur with setulae throughout, longer pale setulae dorsally, darker surface areas with dark setulae; fore and mid tibiae with short dark setulae; hind tibia with dark setulae that are at least as long as segment is wide; hind leg overall stouter than remaining legs; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 47): Brown suffused on apical half except for middle of discal cell, base of cells r_{2+3} and r_5 that appears lighter; dark brown stigma over cell r_1; darker suffused substigmal marking running down from stigma over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cells *bm* and *cua* hyaline; veins dark brown, with additional brown suffusion around vein *CuA*; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk dirty yellow, knob darker yellowish-brown, with a few short and dark setulae.

Abdomen: Tergite 1 orange-yellow with anterior and posterior margins dark brown, lateral margins orange-yellow; tergites 2 and 3 mostly orange-yellow, lateral margins also dark brown; a dark median vitta runs from anterior of tergite 1 to posterior of tergite 3; rest of tergites orange-brown without darker colouring; tergites covered in short dark setulae with longer pale setulae on lateral margins; tergite 1 medially with a longitudinal suture; sternites all orange-yellow.

Terminalia (Fig. 64, 68): Epandrium and cercus dark brown with dark setulae; gonocoxite, hypoproct and hypandrium with pale setulae; gonostylus tapering to a point, outer edge of gonostylus with some scattered short setulae, inner edge with protrusion with some short setulae, apical third of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface densely covered with long setulae, inner surface of upper half bare except for a patch of short setulae on upper marginal area, lower ventral surface similarly setulose as rest of gonocoxite; gonocoxite with microtrichia between setulae; parameral apodeme with pointed apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.9× length of gonocoxite; gonocoxal apodeme 0.8× length of gonocoxite and

of similar length as ejaculatory apodeme; aedeagal tine curvature barely extending down past gonocoxites, apex of tines not extending out past parameral sheath; endoaedeagal process ending widely bilobed apically.

Female (Fig. 24).

Head (Fig. 6): Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle elevated, visible in profile, rubbed bare in ♀ (♂ pale setulose), bluish-grey pruinose medially when viewed dorsally, otherwise appearing black; vertex bluish-grey pruinose, with only pale setulae; anterior ocellus similar in size to posterior pair; ocellar tubercle in front of dorsal margin of eye; dorsal inner edge of eye without discernible paired dark markings, same bluish-grey pruinose as rest of head; occiput similarly bluish-grey pruinose; paired black markings with dark setulae on upper occiput widening towards lateral margin of head, abutting posterior margin of eyes, flanking vertex; upper occiput with similar dark setulae; lower occiput with long pale setulae, only genal area with dark setulae, these continue ventrally on head to mouthparts that have mix of pale and dark ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening only slightly towards antennal base; frons with dark setulae on velvety-black upper half and pale setulae on lower half; face bluish-grey with pale setulae; clypeus black with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by shallow transverse emargination, with deeper sutures laterally; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove running between; scape, pedicel same dark brown to blackish colour as rest of head, with white pruinosity; 1st flagellomere darker orange with similar pruinosity as other segments, 2nd flagellomere brown; scape ca 2× size of pedicel; 1st flagellomere reniform, 2× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus black on apical half with scattered white pruinosity, orange-yellow on basal half, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis approximately same length as head height; proboscis mostly orange-yellow, with some infuscation on labellum, entire structure interspersed with some long pale and dark setulae.

Thorax (Fig. 6): Scutum shining black with two feint dorsocentral bluish-grey pruinose vittae running from pronotum to before scutellum; pronotum bluish-grey pruinose with long pale setulae; postpronotal lobe dark brown, slight bluish-grey pruinose with long pale setulae, anterolateral margin of lobe a lighter yellowish- to orange-brown; notopleuron bluish-grey pruinose with long dark setulae and some pale setulae anteriorly; postalar wall and postalar callus dark brown with slight bluish-grey pruinosity, anterior of postalar callus orange-yellow; scutellum dark brown with bluish-grey pruinosity, apical margin orange-yellow, with laterobasal section appearing to have orange-yellow spot; scutum generally with short dark setulae with postsutural setulae longer than presutural setulae, especially prescutellar setulae; majority of pleura bluish-grey pruinose, except for anatergite, posterior of anepimeron, part of meron shiny blackish-brown; all pleura that are bluish-grey pruinose have long pale setulae; anepimeron with long pale setulae, anatergite and meron bare; proepisternum and proepimeron with long pale setulae; anterior and posterior spiracles and surroundings brownish-yellow, bare; postspiracular scale dark brown.

Legs: Fore coxa entirely yellow with only some scattered white pruinosity, mid and hind coxae blackish-brown, with bluish-grey pruinosity on surface; fore coxa with mostly pale setulae except for some dark setulae apically; mid coxa with long pale setulae on anterior surface, sparsely setulose along posterior margin; hind coxa with a mix of long pale and dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; fore and hind trochanters mostly dirty yellow with edges brown, mid trochanter dark brown with yellow edges, all trochanters with short pale setulae; fore femur entirely yellow; mid femur yellow with anteroventral basal quarter a shiny dark brown; hind femur dark brown except for yellow basal and apical sections; fore tibia and tarsi dark brown almost black; mid tibia and basitarsus yellow, apical tarsal segments appearing darker; hind tibia blackish-brown, with apex dark yellow; hind tarsi dark brown except for dark yellow basal part of basitarsus; fore tarsal claws and pulvilli symmetrical, pulvilus and empodium of similar size; fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore femur with 2–3 long pale setulae grouped together on ventral surface, similar in appearance as rest of setulae; all femora with a mix of short pale and dark setulae on dorsal surfaces; fore femur with long pale setulae on apical ventral and posteroventral surfaces; mid femur with long pale setulae on ventral surface, some dark setulae dorso-apically; hind femur with short setulae throughout except for longer pale setulae towards apex; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsal segments 0.9× (♀) as long as hind tibia; tibial spur formula 0:2:2.

Wing: Brown suffused on apical half except for middle of discal cell, base of cells r_{2+3} and r_5 that is hyaline; dark brown stigma over cell r_1; darker suffused substigmal marking running down from stigma over crossvein *r–m*, bases of discal cell, cell m_3 and apex of cell *br*; cells *bm* and *cua* hyaline; veins dark brown, with additional brown suffusion around vein *CuA*; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk dirty yellow, knob brown, with a few short and dark setulae.

Abdomen: Tergite 1 dark brown to black, basal margin produced anteriorly, orange-yellow with slight grey pruinosity and black edge; tergite 2 mostly orange-yellow with a dark brown median vitta running towards a narrow brown posterior margin, lateral margins also dark brown; tergites 3 and 4 dark brown, tergite 4 orange-brown along posterior margin except for dark brown median vitta which runs down tergite 5 as well; tergites 5–7 orange-yellow for most part with lateral margins same colour; abdomen covered in short dark setulae with longer pale setulae on lateral margins; pale setulae on orange-yellow sections of tergite 2; tergite 1 medially with a longitudinal suture; sternites with long pale setulae similar to those on tergites; sternites 1 and 2 pale yellow, sternite 3 brown, and rest of sternites darker orange ending in black terminalia.

Terminalia (Fig. 82): Cercus dark brown with pale setulae; sternite 8 blackish-brown; genital fork with distal apodeme narrow, ending broadly, but shallowly bifurcated; median lobe with narrow emargination; paired apical lobes with somewhat slender appearance, inner surface with clustered microtrichia at apex; arms gradually rounded; three oval and sclerotized spermathecae.

Etymology. Named after the type locality, Malava Forest, Kenya. Feminine adjective in the nominative singular case.

Distribution. Kenya.

***Suragina milloti* (Séguy, 1951)**

Figs 25, 26, 48, 65, 69, 83

Atrichops milloti Séguy, 1951: 395.
Suragina milloti: Stuckenberg 1965: 93, figs 3, 4, 7, 8; Stuckenberg 1980: 313.

Type material not examined. *Holotype*: Madagascar • 1♂; Tsaratanana mountains; Oct. 1949; (MNHN – Séguy 1951: 395).

Other material examined. Madagascar • 1♂4♀; Diégo-Suarez District [Antsiranana Province]; Madagascar-Nord, Montagne d'Ambre [National Park]; [12°30.132'S, 49°09.966'E]; 1000 masl; 23 Nov.–4 Dec. 1957; B.R. Stuckenberg leg.; (♂: NMSA-DIP 158381; ♀: NMSA-DIP 158379, 158380, 028165) (NMSA) •1♀; Madagascar-Nord, Analamerana [Special Reserve], 50 km SE Diégo-Suarez [Antsiranana], [12°48.00'S, 49°30.00'E]; 80 masl; Jan. 1959; R. Andria leg.; NMSA-DIP 028166 • 1♀; Antsiranana [Province]; Montagne d'Ambre NP [National Park]; 12°32.46'S, 49°10.08'E; 1190 masl; 14 Nov. 2017; M. Hauser leg.; FFP17MAD59 • 1♂1♀; [Atsinanana Region]; Torotorofotsy, Andasibe (Perinet), 22 km NW, Moramonga; 18°46.25'S, 48°25.93'E; 960 masl; 23–25 Oct. 2014; A.H. Kirk-Spriggs, R. Harin'Hala leg.; Malaise trap, primary rainforest; (♂: BMSA(D)58541; ♀: BMSA(D)58540) (BMSA) • 1♂5♀; Fianarantsoa Province; Ranomafana National Park, Talatakely, 800 m SW entrance, Ifanadiana; 21°15.48'S, 47°25.27'E; 610 masl; 16–19 Oct. 2014; A.H. Kirk-Spriggs, R. Harin'Hala leg.; Malaise trap, secondary rainforest; (♂: BMSA(D)58880; ♀: BMSA(D)58879, 58878, 58879, 58881, 58882) (BMSA) • 2♂13♀; Ranomafana National Park, radio tower; 21°15.05'S, 47°24.43'E; 1127 masl; 23–30 Apr. 2002; M.E. Irwin, R. Harin'Hala leg.; Malaise trap in open area nr forest edge; (CSCA) • 1♂; Ranomafana National Park, radio tower; 21°15.05'S, 47°24.43'E; 1127 masl; 27.iv–7 May 2003; R. Harin'Hala leg.; Malaise trap in open area, forest edge; MA02-098-59; (CSCA) • 2♀; Sofia Region; Mahajanga; Amkarafa; 14°23.15'S, 47°45.45'E; 180 masl; 5–11 Nov. 2015; M. Irwin, R. Rasolondalao leg.; MG-69-11; (CSCA).

Diagnosis. *Suragina milloti* is most similar in appearance to other orange-yellow species such as *S. agramma*, *S. copelandi* Muller, sp. nov. and *S. mulanjeensis* Muller, sp. nov. However, *S. agramma* and *S. copelandi* Muller, sp. nov. have the notopleural area the same orange-yellow as the rest of the scutum (e.g. Fig. 1), whereas the notopleural area between the postpronotal lobe and suture is covered in a dark subrectangular mark with bluish-grey pruinosity in *S. milloti* and *S. mulanjeensis* Muller, sp. nov. (Fig. 6). *Suragina mulanjeensis* Muller, sp. nov., however, has its abdominal tergites with dark medial markings compared to the more uniform orange-yellow abdomen of *S. milloti*. Additionally, *S. milloti* has the substigmal marking of the wing much darker and more apparent (Fig. 48) compared to the other species.

Redescription. *Measurements* (♂ n = 2, ♀ n = 2): Wing span: ♂ 8.8–9.9 mm (avg. 9.38 mm); ♀ 8.9–9.0 mm (avg. 8.94 mm); body length: ♂ 9.6–11.6 mm

(avg. 10.6 mm); ♀ 9.2–10.0 mm (avg. 9.6 mm); wing span to body length ratio (avg.): ♂ 0.89; ♀ 0.94.

Male (Fig. 25).

Head: Dark brown ground colour, with silvery-grey pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation (absent in ♀); ocellar tubercle slightly more elevated than frons, blackish with dark setulae; vertex grey pruinose (appearing dark brown at certain angles), with long dark setulae; anterior ocellus slightly larger than posterior pair; ocellar tubercle in front of dorsal margin of eye, margin less indented than in ♀; vertex narrower than in ♀; dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-grey pruinosity as rest of head, except for paired narrow elongated subrectangular dark brown almost velvety-black markings (ca 2× as tall in ♀) with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; reniform dark brown marking surrounding occipital foramen; rest of upper occiput with short pale setulae and lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar pale ventral setulae at base; frons silver-white up to area before eyes touch when viewed dorsally, dark velvety-brown when viewed anteriorly down to before antennal bases; frons at narrowest where eyes touch, widening towards antennal base; with a longitudinal groove running from ocellar triangle down to before antennal base, narrowly separating eyes; frons bare; face and gena silver-white, appearing bare; lateral facial margins with markings that appear dark brown when viewed anteriorly from underneath, but otherwise appearing silver-grey; clypeus brown with silver-grey pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove; scape and pedicel dark brown with silver-grey pruinosity, scape and pedicel of similar height, but pedicel somewhat thinner; 1st flagellomere orange-yellow, 2nd flagellomere dark brown; 1st flagellomere reniform, 2× as tall as pedicel; 2nd flagellomere arista-like; scape and pedicel with dark dorsal setulae, scape bare ventrally, pedicel with dark ventral setulae of similar size to dorsal setulae; palpus brownish-orange, darker ventrally, well-developed, ca 0.5× length of proboscis; palpus with long dark setulae ventrally and some shorter dark setulae dorsally; proboscis comparatively shorter than that of ♀ in relation to head; proboscis orange-yellow, with darker apex, mostly with short dark setulae, some long pale setulae basoventrally and long dark setulae on labrum; some scattered small pale ventral setulae on proboscis.

Thorax: Majority of surface, including scutum, orange-yellow, dorsal surface of scutum with short dark setulae; scutellum with long dark setulae similar to those on postsutural area of scutum; postsutural setulae, especially those on posterior half of postsutural area longer than remaining setulae of scutum; postpronotal lobe yellow with pale setulae, lighter than surroundings; almost entire notopleural area between postpronotal lobe and suture covered in a dark subrectangular mark with bluish-grey pruinosity, dark colour much more visible when viewed in profile; scutellum similarly orange-yellow as scutum, with some specimens having apical half more yellow compared to rest; postscutellum orange-yellow; all pleura yellow except for anepisternum that is similar brown

colour to notopleural area; anepisternum and katepisternum slight bluish-grey pruinose, remaining pleura with only some scattered greyish pruinosity; notopleuron with long dark setulae; area surrounding posterior spiracle yellow, postspiracular scale yellow; proepisternum, pronotum yellow; anterior spiracle bare posteriorly, area surrounding it orange-yellow; proepimeron, proepisternum, anepisternum and katatergite with pale setulae, rest of pleura bare.

Legs: All coxae yellow (sometimes lightly tinged with brown) and with pale setulae; all coxae with longer pale setulae on anterior surface, long pale setulae along posterior margin of fore and hind coxal posterolateral margins; hind coxa with well-developed anterior apical point; all trochanters yellow with some scattered short pale setulae; all femora yellow; hind femur with a light brown median band that can be difficult to observe; mid and hind femora with small anterior apical dark mark; fore and hind tibiae dark brown, mid tibia yellow; fore tarsi dark brown; mid and hind tarsi yellow, but appearing darker brown towards apex; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore and mid femora covered with pale setulae on all surfaces, additionally dorsoapical surface of both with some very short dark setulae; hind femur with longer pale setulae at base, mostly dark setulae on dorsal surface and mostly pale setulae on ventral surface, fore and hind femora anteriorly with shorter setulae and posteriorly with longer setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2 (some specimens 1:2:2), mid spur orange-yellow, hind spur reddish-brown.

Wing: Overall light brown suffused appearance; darker stigma over area of veins R_1 and R_{2+3} and cell r_1; darker elongated suffused substigmal marking over base of cell r_{2+3}, apex of cell *br*, base of discal cell and cell m_3; additionally some slightly darker suffusion over basal half of cell *br* and vein *CuA*; veins brownish; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere entirely orange-yellow, with some very short dark setulae.

Abdomen: Yellow to orange-yellow; tergites 1–3 yellow, remaining tergites more orange-yellow; tergites 2–4 with a lighter yellow anterior margin; tergites 2 and 3 with brown lateral markings; tergites 1–3 with a poorly defined suffused marking running along dorsal surface; sternites yellow; tergites with short black setulae on median-dorsal surface and long pale setulae on lateral margins; sternites with long pale setulae; tergite 1 without weak median longitudinal suture.

Terminalia (Figs 65, 69): Epandrium reddish-orange, dark brown along apical margin, cercus dark brown with dark setulae; hypoproct and hypandrium with pale setulae; gonostylus somewhat tapering with truncated apex, outer edge of gonostylus with some scattered short setulae, inner edge with small protrusion with 2–4 setulae, apex of gonostylus sparsely covered in microtrichia; gonocoxite widening apically, subrectangular in shape, apex somewhat flattened, gonocoxite outer, ventral medial and lower surfaces with long setulae, inner surface

of upper half with shorter setulae; gonocoxite with microtrichia between setulae; parameral apodeme ending with a hook-like apex, almost reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.8× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly longer than ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites, apex of tines barely extending out past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 26): Similar to ♂ except for the following:

Head: Orange-brown ground colour; dichoptic; lateral edge of eye without indentation (slight in ♂); dorsal margin of eye more indented than in ♂; vertex silver-grey when viewed anteriorly, wider than in ♂ with long dark setulae that are much more apparent than in ♂, dark brown when viewed dorsally; upper frons appearing to extend up dorsal inner edge of eye with paired dark markings, but only visible when viewed anteriorly, otherwise area similarly silver-white pruinose; occiput with same silver-white pruinosity as rest of head, except for paired dark brown, almost black subrectangular markings on upper occiput that are taller than in ♂; frons velvety-black from ocellar tubercle down to lower half of eye, silver-grey down to antennal base, if viewed anteroventrally velvety-black appearance seemingly extends down to between antennal bases; short dark setulose on velvety-black upper half of frons, bare on silver-white pruinose area past middle of eye; when viewed posterodorsally there is a clear divide between velvety-black upper half and silver-grey lower half of frons; frons at narrowest ca 2× width of ocellar tubercle, widening slightly towards antennal base; face separated anteriorly from clypeus by shallow transverse emargination, deeper sutures laterally; clypeus orange base colour with slight whitish pruinosity; palpus basal segment orange-yellow with long pale setulae, apical segment black with silver-grey pruinosity and long dark setulae; proboscis with overall infuscated appearance, with ventral surface yellowish, dark setulae throughout.

Thorax: Anepisternum light brown, more apparent on upper surface; similar pruinosity as in ♂, but denser.

Legs: Same patterning as in ♂, but darker brown colour compared to lighter brown ♂, especially evident on median band of hind femur.

Wing (Fig. 48). Overall light brown suffused appearance; darker stigma over area of veins R_1 and R_{2+3} and cell r_1 compared to ♂; darker elongated suffused substigmal marking over base of cells r_{2+3} and r_5, apex of cell *br*, base of discal cell and cells m_3 and m_4; additionally some darker blotchy suffusion on basal half of cell *br* and widely suffused over vein *CuA*; darker suffused over apical half of cells r_{2+3} *and* r_4, apical third of cells r_4, m_3 and m_4 and entirety of cells m_1 and m_2; veins dark brown.

Abdomen: Similar to ♂, lateral dark markings on tergites 2 and 3 only dark orange, not brown; suffused dorsal markings not evident on tergites.

Terminalia (Fig. 83): Cercus orange-yellow with pale setulae; genital fork with distal apodeme ending broadly truncated with a bilobed appearance; median lobe with wide, moderate emargination; paired apical lobes with somewhat slender appearance, inner surface with clustered microtrichia at apex; arms gradually rounded; three oblong and sclerotized spermathecae.

Distribution. Madagascar.

***Suragina monogramma* (Bezzi, 1926)**
Figs 27, 28, 49, 66, 70, 84

Atrichops monogramma Bezzi, 1926: 305.
Suragina monogramma: Stuckenberg 1960: 288, fig. 87; Stuckenberg 1980: 313.
Atrichops inaequalis Bezzi, 1926: 307; synonymised by Stuckenberg 1960: 288.

Type material examined. *Holotype*: 1♀ [South Africa] • [KwaZulu-Natal], Mfongosi, Zulu L. [Land]; [28°42.69'S, 30°49.95'E]; W.E. Jones leg.; Dec. 1916; (SAM-DIP-A006860).

Other material examined. ♂♀ Types of *Atrichops inaequalis*: South Africa • KwaZulu-Natal: K. Kloof [Kranzkloof, now Kloof], [29°45.858'S, 30°51.0529'E]; Dec.1915, Marley leg.; (SAM-DIP-A006861). Mozambique: • 4♂3♀; [Sofala Province] Gorongoza Mountain, Manica Sofala Dist; [18°45.96'S, 34°30'E]; 840 masl; Jul. 1959; B.R. Stuckenberg leg.; Gallery Forest; (♂:NMSA-DIP 028168, 158383, 158384, 162050; ♀: NMSA-DIP 027714, 158382, 158385). South Africa •1♂; KwaZulu-Natal; Pinetown district, Gillitts; [29°47.85'S, 30°47.20'E]; Feb. 1963; B.R. Stuckenberg & P. Stuckenberg leg.; (♂:NMSA-DIP 158416; ♀: NMSA-DIP 158412, 158413, 158414) •1♂; KwaZulu-Natal; Pinetown district, Gillitts; [29°47.85'S, 30°47.20'E]; 21 Nov. 1963; B.R. Stuckenberg & P. Stuckenberg leg.; (NMSA-DIP 028180) •1♀; KwaZulu-Natal; Pinetown district, Gillitts; [29°47.85'S, 30°47.20'E]; 28 Dec. 1961; B.R. Stuckenberg & P. Stuckenberg leg.; (NMSA-DIP 028176) • 1♀; KwaZulu-Natal; Woodgrove Retirement Village; 30°21.9167'S, 30°21.9333'E; 10 Oct. 2018; Londt, J.G.H.; in garden; (NMSA-DIP 205579) • 1♀; KwaZulu-Natal; Merrivale dist.; 29°30.00'S, 30°14.00'E; 14 Nov. 2006; B.R. Stuckenberg leg.; (NMSA-DIP 158391) • 1♀; KwaZulu-Natal; Royal Natal National Park, Thendele Camp [nr Devil's Hoek path, forest patch]; 28°42.62'S, 29°56.04'E; 14–17 Jan. 2019; J. Midgley & K. Williams leg.; Malaise trap; (NMSA-DIP 102630) • 1♀; KwaZulu-Natal; Mtamvuna Nature Reserve; 3130AA [31°06.00'S, 30°09.6'E]; 10–15 Jan. 1982; J.G.H. Londt leg.; Malaise trap; (NMSA-DIP 158388) • 1♀; KwaZulu-Natal; Pietermaritzburg, Ashburton; 29°49.3167'S, 30°27.1'E; ca 630 masl; 22 Nov. 2009; R.M. Miller leg.; in house; (NMSA-DIP 192953) • 2♀; KwaZulu-Natal; Royal Natal National Park; 2828DB [28°41.34'S, 28°56.7'E]; Jan. 1971; H. Townes leg.; late January; (NMSA-DIP 158448, 1588449) • 1♀; KwaZulu-Natal; Royal Natal National Park; [28°41.34'S, 28°56.7'E]; 6–10 Dec.1984; J.G.H. Londt leg.; Riverine bush, Montane slopes; (NMSA-DIP 028175) • 1♀; KwaZulu-Natal; Shawswood, Karkloof; 29°18.1'S, 30°18.25'E; 18 Nov. 2020; L., Mva leg.; (BMSA(D)129988) • 2♂; KwaZulu-Natal; K. Kloof [Krantzkloof]; [29°45.858'S, 30°51.0529'E]; Dec. 1915; Marley leg.; (NMSA-DIP 028160, 158386) • 1♂; Mpumalanga; Gladdespruit river, nr. Nelspruit Airfield; 2530DB [25°30.628'S, 30°53.941'E]; 2975 ft; 3 Nov. 1970; B.R. Stuckenberg leg.; Streamside bush; (NMSA-DIP 028170) • 1♀; Eastern Cape; Hogsback; 3226DB [32°35.88'S, 26°56.28'E]; 13–16 Dec. 1985; J.G.H. Londt & B. Londt leg.; Forest and Forest margins; (NMSA-DIP 158387).

Diagnosis. An orange-yellow species (Figs 27, 28) with a black median vitta on the scutum that contrasts with the surrounding orange-yellow colour and runs down to before the scutellum. The median vitta is also flanked by bluish-grey pruinosity. Additionally, almost the entire notopleural area is covered with a dark subrectangular mark with silver-grey pruinosity. The abdomen has dark narrow median markings. *Suragina monogramma* is most similar to *S. fal-*

Figures 27–30. *Suragina* Walker spp. lateral habitus: *S. monogramma* (Bezzi): **27** ♂ (NMSA-DIP 028180) **28** ♀ (NMSA-DIP 158385); *S. mulanjeensis* Muller, sp. nov.: **29** ♂ holotype (NMSA-DIP 158398) **30** ♀ paratype (NMSA-DIP 158394). Scale bars: 1 mm.

sa (Fig. 19), however, the latter has the scutum with central blackish-brown vitta, and additional pre- and postsutural dark brown markings (Fig. 4), whereas *S. monogramma* does not have the mentioned dark brown markings. Additionally, *S. monogramma* has its tibia brownish-yellow to orange-yellow compared to *S. falsa* that has its tibiae dark brown, almost black.

Redescription. ***Measurements*** (♂ n = 2, ♀ n = 2): Wing span: ♂ 7.0–7.6 mm (avg. 7.3 mm); ♀ 7.5–9.7 mm (avg. 8.6 mm); body length: ♂ 7.4–9.6 mm (avg. 8.5 mm); ♀ 7.2–10.7 mm (avg. 8.9 mm); wing span to body length ratio (avg.): ♂ 0.87; ♀ 0.97.

Male (Fig. 27).

Head: Dark brown colour, with silver-white pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation

(absent in ♀); ocellar tubercle slightly more elevated than frons, with pale setulae, colour black with slight greyish pruinosity; vertex whitish-grey pruinose, with long pale setulae; anterior ocellus same size as posterior pair; ocellar tubercle in front of dorsal margin of eye, margin less indented than in ♀; vertex narrower than in ♀; dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-white pruinosity as rest of head, except for paired narrow dark brown, almost velvety-black (ca 2× as tall in ♀) markings with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; small subrectangular brownish patch below vertex; upper occiput with short pale setulae on dorsal margin and rest of upper surface, lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar pale ventral setulae at base; frons silver-white up to narrow area before eyes touch when viewed dorsally, dark velvety-brown when viewed anteriorly; frons at narrowest where eyes touch, widening towards antennal base; frons bare; face and gena silver-white with pale setulae, lateral facial margins with markings that are same dark velvety-brown as frons when viewed anteriorly; clypeus brownish with silver-white pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.75× width of scape, with slight longitudinal groove; scape and pedicel orange-yellow, sometime infuscated dorsally; 1st flagellomere orange-yellow, 2nd flagellomere brownish; 1st flagellomere reniform, only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape and pedicel with dark dorsal setulae, scape bare ventrally, pedicel with dark ventral setulae of similar size to dorsal setulae; palpus orange-yellow, well-developed, ca 0.5× length of proboscis; palpus with dark setulae on apical half and longer pale setulae on lower half; proboscis comparatively shorter than that of ♀ in relation to head; proboscis orange-yellow with long dark setulae, similar setulae ventrally; some scattered small pale setulae on proboscis.

Thorax: Majority of surface orange-yellow, dorsal surface of scutum with short dark setulae; scutellum with long dark setulae similar to those on postsutural area of scutum; postsutural setulae, especially those on posterior half of postsutural area, longer than remaining setulae of scutum; postpronotal lobe yellow, lighter than surroundings; almost entire notopleural area between postpronotal lobe and suture covered in dark subrectangular mark with silver-grey pruinosity, dark colour much more visible when viewed in profile; marking separated from median vittae in majority of specimens, but in some from Mozambique, mark is joined with median vittae which is much wider (see Stuckenberg 1960: 289); scutum with black median vitta that is sparsely grey pruinose and runs anteriorly from behind pronotum down to just before scutellum; median vittae pinched at posterior end in some specimens, ending more broadly in others; median vittae bordered by bluish-grey pruinose dorsocentral vittae that fade out posteriorly; scutellum uniformly orange-yellow with basal area dark brown, some specimens basal half dark brown; postscutellum dark brown; anepisternum, katepisternum, meron, katepimeron and katatergite dark brown with bluish-grey pruinosity, remaining pleura orange-yellow with only slight whitish pruinosity; notopleuron with long dark setulae; area surrounding posterior spiracle yellow, postspiracular scale orange-yellow; proepisternum, pronotum yellow; anterior spiracle bare posteriorly, area surrounding it orange-yellow; proepimeron, proepisternum, anepisternum and katatergite with pale setulae, rest of pleura bare.

Legs: Fore and hind coxae yellow; mid coxa sometimes brown on anterior surface and some bluish pruinosity; fore coxa with pale setulae, mid and hind coxae with pale setulae, and on anterior apical surface and margins with dark setulae; all coxae with longer pale setulae on anterior surface except for long pale setulae on posterolateral margin of hind coxa; hind coxa with well-developed anterior apical point; all trochanters same yellow as coxae, with some scattered short pale setulae; all femora yellow; hind femur with a median dark band, appearing absent or very weak in specimens from Gillets, KwaZulu-Natal; mid and hind femora with small anterior apical dark mark; fore and hind tibiae and tarsi dark brown, much lighter brown, almost dark yellow in specimens from Gillets, KwaZulu-Natal; mid tibia yellow, tarsi brownish; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore and mid femora covered with pale setulae on all surfaces, mid femur with ventro-apical surface with some short dark setulae, hind femur with mixed long pale and dark setulae on dorsal and ventral surfaces, basally with long pale setulae, anteriorly with short setulae and posteriorly with longer setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2 or 1:2:2 in some specimens.

Wing: Appearing mostly hyaline, with light brown suffused appearance on apical half of wing, with discal cell (except for basal third), cell *cua*, parts of cells *br* and *bm* hyaline; with darker stigma over area of veins R_1 and R_{2+3} and cell r_1; veins brownish; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere entirely orange-yellow, with some very short dark setulae.

Abdomen: Yellow to orange-yellow; tergite 1 without dark lateral border, tergites 2–6 always with dark brown lateral borders, but more prominent on tergites 2–4; pattern of median dark markings on dorsal surface of tergites variable but distinctive from surroundings; tergites 1–6 usually with a dark median marking, especially on tergites 1–4; dark brown marking on tergite 3 may be incomplete; each dark marking has a brown suffusion surrounding it, giving marking a posteriorly tapering subtriangular appearance in some specimens; tergite 7 dark brown; in some specimens tergites 3–6 have greyish pruinose borders; sternites yellow, but in some specimens these are discoloured and may appear darkened due to dried gut contents; tergites with short black setulae on median-dorsal surface of tergites, with long pale setulae on lateral margins; sternites with long pale setulae; tergite 1 without median longitudinal suture.

Terminalia (Figs 66, 70): Epandrium and cercus dark brown with dark setulae; hypoproct and hypandrium with pale setulae; gonostylus tapering with truncated apex, outer edge of gonostylus with short setulae, inner edge with protrusion with 2–4 setulae, apex of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rectangular than rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner and ventral surfaces of upper half with short setulae, lower ventral surface comparatively less setulose; gonocoxite with microtrichia between setulae; parameral apodeme with truncated, rectangular

apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly longer than ejaculatory apodeme; aedeagal tine curvature extending down past gonocoxites, apex of tines not extending out past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 28): Similar to ♂ except for the following:

Head: Dichoptic; lateral edge of eye without indentation (slight in ♂); ocellar tubercle with short dark setulae; dorsal margin of eye more indented than in ♂; vertex wider than in ♂, without subrectangular mark underneath vertex; silver-white pruinose directly behind ocellar tubercle up to posterior of eye margin; dorsal inner edge of eye with paired dark markings, but only visible when viewed anteriorly, otherwise area similarly silver-white pruinose; occiput with same silver-white pruinosity as rest of head, except for paired subtriangular (ca 2× as tall as ♂) dark brown, almost black markings on upper occiput, abutting posterior margin of eyes, and flanking but not touching vertex; frons velvety-black from ocellar tubercle down to lower half of eye, silver-white down to antennal base; frons mixed pale and dark setulose on velvety-black area, bare on silver-white pruinose area past middle of eye (♂ bare), when viewed posteriorly silver-white colour shifts upwards, at narrowest ca 2× width of ocellar tubercle, widening slightly towards antennal base; face separated anteriorly from clypeus by shallow transverse emargination, deeper sutures laterally; clypeus orange base colour with slight greyish pruinosity; 1st flagellomere ca 2× size of pedicel; scape and pedicel sometimes infuscated dorsally otherwise entirely orange-yellow with some whitish pruinosity.

Thorax: Katepisternum orange-yellow compared to dark brown of ♂, but still with same bluish-grey pruinosity; meron and katepimeron orange-yellow (dark brown in ♂); postscutellum reddish-brown (♂ dark brown).

Legs: All coxae with only pale setulae; mid coxa with whitish pruinosity on anterior surface (♂ bluish-grey); fore tarsi symmetrical; setulae of femora overall shorter (compared to ♂) except for preapical ventral area of fore femur that has long pale setulae, and apical dorsal area that has short dark setulae; hind femur with mix of short pale and dark setulae.

Wing (Fig. 49): Similar to ♂.

Abdomen: Variable, much as in ♂: overall orange-yellow; tergites 1–6 with a dark median marking, tergite 1 not marked, tergites 1–3 with dark median marking, entire abdomen irregularly marked with dark brown colour, or abdomen entirely blackish-brown.

Terminalia (Fig. 84): Cercus orange-yellow with pale setulae; genital fork with distal apodeme ending broadly rounded-bilobed; median lobe with wide, moderate emargination; paired apical lobes with somewhat slender, elongated rectangular appearance, inner surface with clustered microtrichia at apex; arms gradually rounded; three oblong and sclerotized spermathecae.

Remarks. Stuckenberg (1960: 289) provides a detailed description of colour variation in a series of 12 males he examined from Gorongosa, Mozambique. Some of these males agree with and overlap in colour characters from South African specimens, highlighting the variability of the species.

Distribution. Mozambique, South Africa.

***Suragina mulanjeensis* Muller, sp. nov.**
https://zoobank.org/27E2B0DF-D926-47D1-AFCA-EA73FCD53ED8
Figs 5, 29, 30, 50, 71, 73, 85

Type material examined. *Holotype*: Malawi • 1♂; [Southern Region]; Mulanje Mt. [Mulanje Massif] nr Likabula; [15°56.983'S, 35°35.617'E]; 26–27 Oct. 1983; A. Freidberg leg.; (NMSA-DIP 158398) (NMSA).

***Paratypes*:** 1♂6♀; same data as holotype (♂: NMSA-DIP 162049; ♀: NMSA-DIP 158392, 158393, 158394, 158395, 158396, 158397) (NMSA) • 1♂4♀; Southern Region; Mulanje Mountain [Mulanje Massif] at:; 15°56.1667'S, 35°31.1982'E; 1061 masl; 12–14 Oct. 2016, A.H. Kirk-Spriggs & B.S. Muller leg.; Malaise trap, stream bed; Miombo woodland; (♂: BMSA(D)92379; ♀: BMSA(D)92374, 92375, 92377, 92378) (BMSA).

Holotype deposited in NMSA and paratypes deposited as per listed institutional codens in citations above: BMSA and NMSA.

Diagnosis. An orange-yellow species (Figs 29, 30), without apparent dark substigmal markings on the wing (Fig. 50). The abdomen in most specimens has subtriangular markings on the majority of segments. It is most similar to *S. milloti* (Figs 25, 26), which is a Madagascan endemic. Apart from distribution, *S. milloti* differs from *S. mulanjeensis* Muller, sp. nov. in having its abdominal tergites more uniformly orange-yellow and a much more prominent dark substigmal mark.

Description. ***Measurements*** (♂ n = 2, ♀ n = 2): Wing span: ♂ 7.3–7.6 mm (avg. 7.4 mm); ♀ 7.9–8.5 mm (avg. 8.2 mm); body length: ♂ 8.4–9.2 mm (avg. 8.8 mm); ♀ 7.6–10.0 mm (avg. 8.8 mm); wing span to body length ratio (avg.): ♂ 0.85; ♀ 0.94.

Male (Fig. 29).

Head (Fig. 5): Orange-brown ground colour, with silver-grey pruinosity on majority of head; eye bare; holoptic, some specimens' eyes separated 0.5× width of anterior ocellus; ommatidia on lower quarter of eye smaller than those on rest of eye; lateral edge of eye with indentation, and an apparent weak, dark tubercle just above indentation (more apparent in some specimens than others); ocellar tubercle clearly visible in profile, blackish-brown in colour with only slight grey pruinosity, with short dark setulae; vertex dark brown with greyish pruinosity and long dark setulose; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye, not placed as deeply towards middle of head as in ♀; dorsal inner edge of eye abutting ocellar tubercle; occiput with same silver-grey pruinosity as rest of head; paired very narrow subrectangular black markings with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput with short pale setulae; lower occiput with long pale setulae, these continue ventrally on head to premental area of mouthparts that have similar long ventral setulae; frons entirely bluish-grey pruinose when viewed dorsally, velvety-black from ocellar tubercle down to before antennal bases when viewed anteriorly; frons widening from where eyes touch down to antennal base; frons with short pale setulae up to two-thirds of frons towards ocellar tubercle; face and gena silver-grey, both with pale setulae; clypeus orange-brown with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by a deep transverse suture, similar to lateral sutures; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal

bases separated ca 0.5× width of scape, with slight longitudinal groove running between; scape dark brown, pedicel orange-yellow to orange-brown, both with silvery pruinosity; 1st flagellomere orange-yellow, with sparse silvery pruinosity; 2nd flagellomere dark brown; scape slightly larger than pedicel; 1st flagellomere reniform, ca 1.4× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only pale dorsal setulae; palpus orange-brown with dense grey pruinosity or orange-yellow with only slight greyish pruinosity; palpus with dark setulae throughout, ca 0.5× length of proboscis; proboscis slightly shorter than head height; proboscis orange-yellow to almost entirely dark brown in colour, specimens with orange-yellow proboscis with lateral and ventral margins dark brown; prementum orange-yellow, proboscis with long dark setulae except for those on prementum that are long pale.

Thorax (Fig. 5): Thorax predominantly orange-yellow, including majority of pleura and scutum; scutum with short dark setulae, with two feint dorsocentral brownish-grey pruinose vittae running from pronotum to before transverse suture; pronotum yellow with whitish pruinosity and pale setulae; postpronotal lobe with similar yellow colour and whitish pruinosity as pronotum; postpronotal lobe with a mix of pale and dark setulae; notopleuron brown with bluish-grey pruinosity, with a mix of long pale and dark setulae throughout; postalar wall and postalar callus orange-yellow with only slight whitish pruinosity, supra-alar area and postalar callus with short dark setulae; scutellum orange-yellow with dark setulae, prescutellar area with bluish-grey pruinosity; pleura with slight whitish pruinosity, especially evident on anepisternum, katepisternum and katatergite; majority of anepisternum dark brown and similar in appearance to notopleuron, contrasting with surrounding orange-yellow pleura; proepisternum and proepimeron, katatergite and anepisternum have long pale setulae, rest of pleura bare; anterior and posterior spiracles whitish-yellow, bare; postspiracular scale orange-yellow with brownish apical margins; postscutellum orange-yellow.

Legs: All coxae yellow to orange-yellow; fore coxal setulae entirely pale or at most with a couple of dark setulae apically; mid coxal setulae mixed pale and dark; hind coxal setulae pale with some dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with long pale setulae; fore and hind trochanters yellow, mid trochanter brownish-yellow, all trochanters with short pale setulae; fore and mid femora almost entirely yellow, except for slightly brown apex in some specimens; hind femur yellow with brown to dark brown median band; fore tibia yellow except for apical third brownish, mid tibia yellow, hind tibia brown to dark brown with base and apex yellowish-brown; fore and hind tarsi brown to dark brown, mid basitarsus yellow on majority of segment except for yellowish-brown apex, with remaining mid tarsal segements brown; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore femur overall with short pale setulae, with long pale setulae on posteroventral surface; mid femur with long pale setulae on ventral surface, otherwise with short pale setulae; hind femur with a mix of pale and dark setulae on dorsal and ventral surfaces, base of femur with pale setulae; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; hind leg overall stouter than remaining legs; hind tarsal length subequal to hind tibia; tibial spur formula 0:2:2.

Wing: Hyaline; darker brown stigma over area of veins R_1 and R_{2+3} and cell r_1; apical third of wing with a brown suffused appearance, except for discal cell, and cells r_{2+3}, m_4 hyaline; cell *br* medially suffused; cells *bm* and *cua* hyaline apart from suffusion around surrounding veins *CuA* and *CuP*; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed near wing margin, cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk yellow, knob yellowish-brown, with a few short and dark setulae.

Abdomen: Overall brownish-yellow to yellow in colour; tergites 1 and 2 typically without any markings, some specimens each with a dorsal longitudinal subrectangular median dark brown marking; tergite 3 always with a dorsal subtriangular brown suffused marking, some specimens with an additional longitudinal subrectangular dark brown marking over suffused marking; tergites 4–6 each with brown to dark brown suffused dorsal marking, in some specimens this is much reduced and dorsal surface is mostly brownish-yellow; tergites 3–6 with grey pruinose band along posterior margin; tergites 2–6 with elongated dark lateral markings, some specimens these markings are very light and almost indistinguishable; tergite 1 medially without a longitudinal suture; tergites 1–5 with dark setulae dorsally, and long pale setulae on lateral margins; tergite 6 with dark lateral setulae; sternites yellowish, with some irregular dark markings on sternites 4 and 5; sternites with pale setulae.

Terminalia (Figs 71, 73): Epandrium and cercus dark brown with dark setulae; hypoproct and hypandrium with pale setulae, gonocoxite with dark lateral setulae and pale inner setulae; gonostylus almost parallel shaped with a truncated apex, outer edge of gonostylus with short setulae, inner edge with protrusion with 4 setulae, apical third of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner and ventral surfaces of upper half with short setulae, lower ventral surface setulose; gonocoxite with microtrichia between setulae; parameral apodeme with truncated apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly longer than ejaculatory apodeme; aedeagal tine curvature barely extending down past gonocoxites, apex of tines not extending out past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 30): Similar to ♂ except for the following:

Head: Dichoptic; ommatidia of similar size; lateral edge of eye without any indentation, but also with apparent tubercle as in ♂; anterior ocellus similar in size to posterior pair; ocellar tubercle placed deeper in front of dorsal margin of eye compared to ♂; dorsal inner edge of eye separated from ocellar tubercle by pair of silver-grey markings, appearing to extend down from vertex, which is more bluish-grey pruinose (more greyish in ♂); occiput with paired subrectangular black markings ca 2× height of those on ♂ upper occiput; frons bluish-grey pruinose between lower half of eye down to antennal base, velvety-black from ocellar tubercle to lower half of eye when viewed dorsally, when viewed anteriorly entire frons appears blackish, although lower half is shinier than upper velvety-black half; frons widening only slightly from velvety-black patch towards antennal bases; frons with dark setulae on velvety-black upper half and pale setulae on bluish-grey lower half; face and gena silvery-grey pruinose, clypeus with

bluish-grey pruinosity; face separated anteriorly from clypeus by transverse suture, (less prominent, and angle more obtuse than in ♂); antennal bases separated ca 0.4–0.6× width of scape, with slight longitudinal groove running between; 1st flagellomere ca 1.5× size of pedicel; proboscis ca same length as head height.

Thorax: Similar to that of ♂, except whitish pruinosity is denser than in ♂.

Legs: Fore and mid coxae with a slight white pruinosity; fore coxal setulae entirely pale; all trochanters yellow; fore and mid femora entirely yellow; hind femur with similar dark median band as in ♂, but band is narrower than in ♂; rest of leg colouration similar to that of ♂; fore tarsal claws symmetrical; overall leg setation similar to ♂ except generally shorter.

Wing (Fig. 50): Similar to ♂.

Abdomen: Overall orange-yellow to yellow in colour; in some specimens tergites almost entirely unmarked except for some darker markings on tergite 7, in other specimens tergites 1–6 with subtriangular dark suffused markings, varying in intensity, tergite 7 with two dark markings and tergite 8 entirely dark; tergites 2 and 6 with elongated dark lateral markings, intensity differs between specimens; all sternites apparently yellow, some dark discolouration due to dried gut contents; tergite 1 with weak median longitudinal suture.

Terminalia (Fig. 85): Cercus yellowish-brown with pale setulae; genital fork with distal apodeme ending in a truncated broad knob; median lobe without a clear emargination; paired apical lobes with somewhat slender appearance, inner surface with inward projecting knob that has clustered microtrichia at apex; arms gradually rounded; three rounded and sclerotised spermathecae.

Etymology. Named after the type locality, the Mulanje Massif, Malawi. Feminine adjective in the nominative singular case.

Distribution. Malawi.

Suragina nigromaculata (Brunetti, 1929)

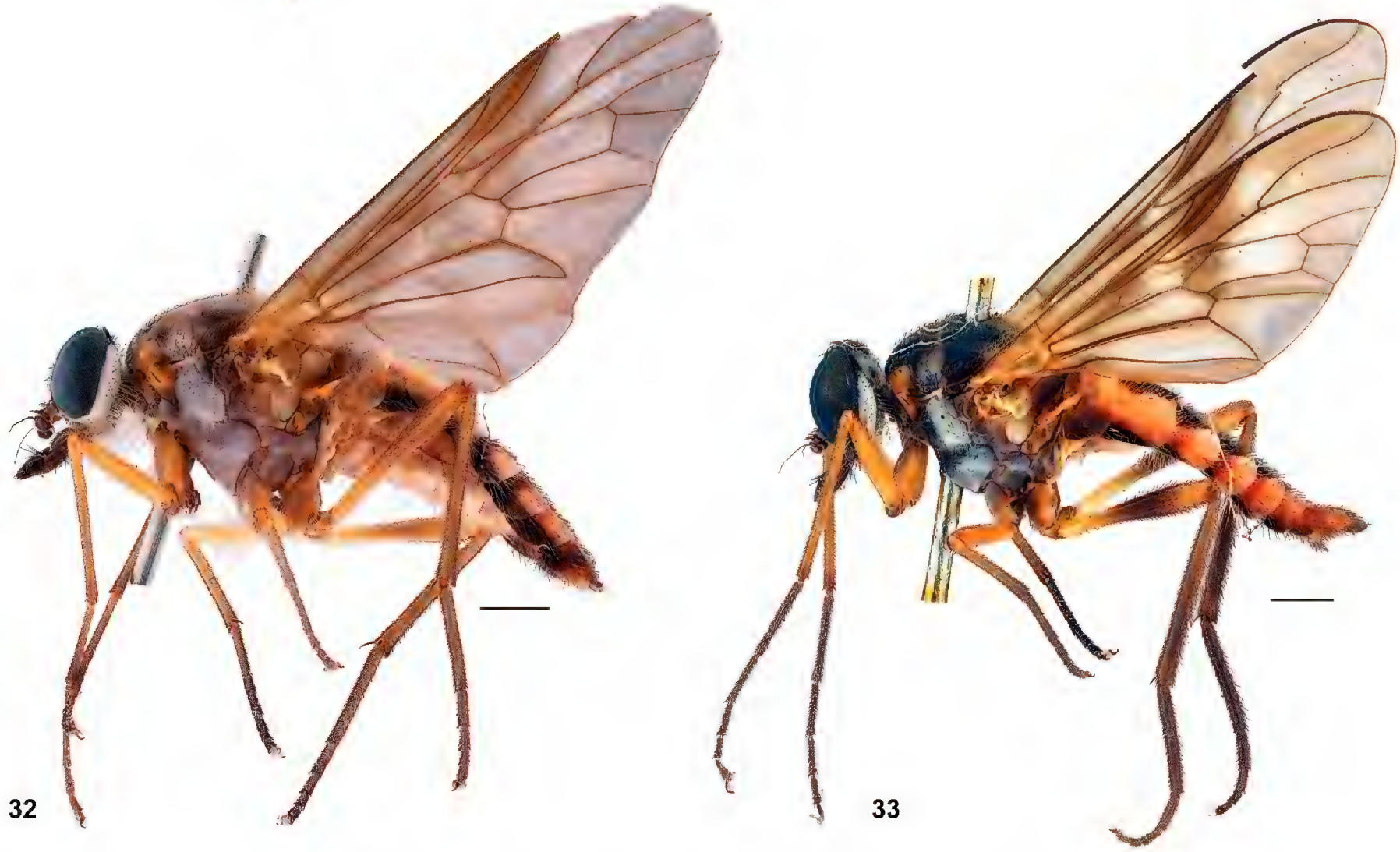
Figs 31, 51

Atrichops nigromaculata Brunetti, 1929: 1.
Suragina nigromaculata: Stuckenberg 1960: 293, fig. 87; Stuckenberg 1980: 313.

Type material examined. [from digital photographs] ***Holotype*:** Zimbabwe • 1♂ Sawmills, S. Rhodesia; 26 Dec. 1919; [19°34.998'S 28°01.986'E, 1059 masl] Rhodesia Museum; Presented by the Imperial Bureau of Entomology, British Museum 1929–48; *Atrichops nigromaculata* Brun Type ♂, det. E. Brunetti 1926; Holotype *Atrichops nigromaculata* Brunetti det. J.E. Chainey 1981 (NHMUK 014064156).

Diagnosis. The male (Fig. 31) of the species has a general orange-yellow appearance with darker pleura and scutum (female unknown). The abdomen is mostly orange-yellow, however, tergites 1 and 2 have dark brown median vittae, with tergites 2 and 3 with lateral markings as well. The species is most similar so *S. binominata* (see *S. binominata* diagnosis) and, to a lesser extent, *S. monogramma* (see below).

Remarks. The original description of the male by Brunetti (1929: 1) is brief, and the description was published posthumously along with other species found in his manuscript papers. The original description also lacks certain key



Figures 31–33. *Suragina* Walker spp. dorsal habitus: **31** *S. nigromaculata* ♂ holotype (NHMUK 014064156); lateral habitus, *S. pauliani* Stuckenberg: **32** ♂ paratype (NMSA-DIP 28172) **33** ♀ paratype (NMSA-DIP 028174). **31** Copyright NHMUK under CC BY 4.0. Scale bars: 1 mm.

characters, such as the presence of a presutural spot. This led to Stuckenberg (1960: 293) proposing that should the male have this spot, then *S. nigromaculata* may in fact be a synonym of *S. monogramma*.

Upon examination of the provided male type photographs during the current revision, it was found that the type does not have the aforementioned presutural spot in the notopleural area; additionally, several characters not mentioned in the original description easily distinguish it from the male of *S. monogramma* (see diagnosis), and the species is here regarded as valid. A redescription of the male type from Saw-Mills, Zimbabwe follows, based on digital photographs provided by the NHMUK.

Description. Male (Fig. 36).

Measurements (n = 1): Wing span: 5.2 mm; body length: 7.2 mm; wing span to body length ratio: 0.72.

Redescription. (Based on digital photographs of ♂ Holotype).

Head: Brown colour, with silver-white pruinosity on majority of head; eye bare; holoptic; ommatidia of similar size; lateral edge of eye with slight indentation; ocellar tubercle slightly more elevated than frons, black in colour with some short pale setulae; vertex silver-white pruinose, apparently rubbed bare; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye (♀ unknown); dorsal inner edge of eye without discernible paired dark markings; occiput with same silver-white pruinosity as rest of head, except for paired narrow subtriangular dark brown, almost black markings with pale setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput with short pale setulae on dorsal margin and on rest of upper surface, lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar pale ventral setulae; frons silver-white up to narrow area before eyes touch when viewed dorsally, dark velvety-brown when viewed anteriorly; frons at narrowest ca 0.5× width of anterior ocellus, widening towards antennal base; frons bare; face and gena silver-white with pale setulae, clypeus dark brown with silver-white pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 1× width of scape, with slight longitudinal groove; scape, pedicel, 1st flagellomere orange-yellow, 2nd flagellomere brownish; 1st flagellomere reniform, only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape and pedicel with dark dorsal and ventral setulae of similar size, palpus orange-yellow, well-developed, ca 0.5× length of proboscis; proboscis orange-yellow with long pale setulae, some long dark setulae ventrally; some scattered small dark setulae on proboscis and palpus.

Thorax: Orange-yellow ground colour; median dorsal surface of scutum and scutellum with short pale setulae, remainder of thorax with longer pale setulae, especially on pleura and lateral surface of scutellum; postsutural setulae similar to presutural setulae, except for longer prescutellar setulae; postpronotal lobe orange-yellow with long pale setulae; scutum mostly dark brown with slight median greyish pruinosity; postalar wall and callus appearing orange-yellow; scutellum almost entirely orange-yellow except for darker basal margin; pleura brown in colour in colour except for posterior of anepisternum that is orange-yellow; anepisternum, katepisternum and katatergite lightly silver-white dusted; notopleuron orange-yellow with long pale setulae; anterior spiracle bare posteriorly; area surrounding posterior spiracle brown, postspiracular scale brown, similar to majority of pleura; proepisternum, pronotum brownish; proepimeron, proepisternum with pale setulae, anepisternum with pale setulae; katatergite with pale setulae; rest of pleura bare.

Legs: Coxae orange-yellow; fore and mid coxae with long pale setulae on surface, hind coxa with long pale setulae on anterior and lateral apical edges, and with well-developed anterior apical point; all trochanters same orange-yellow colour as rest of body with some scattered short pale setulae; all femora uniformly orange-yellow; mid and hind femora with small anterior apical dark mark; fore tibia and tarsi reddish-brown, mid and hind tibiae orange-yellow; mid and hind tarsi orange-yellow; terminal fore tarsi missing; fore and mid femora covered with pale setulae on all surfaces except for dorso-apical surface with short dark setulae, hind femur with mixed long pale and dark setulae on dorsal

and ventral surfaces, basally with long pale setulae, anteriorly with short setulae and posteriorly with longer setulae; hind leg overall stouter than remaining legs; remaining fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae; combined length of hind tarsal segments subequal to hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 51): Overall slight light brown suffused appearance; with a slightly yellow-brown stigma over area of veins R_1 and R_{2+3} and cell r_1; veins light brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere orange-yellow, slightly infuscated apically, with very short dark setulae.

Abdomen: Overall orange-yellow colour; tergites 1 and 2 with broad dark brown median vittae, tergite 3 with dark marking on anterior two-thirds; tergite 2 additionally with dark brown lateral markings; tergites with short black setulae on medial-dorsal surfaces, laterally with longer dark setulae; sternites orange-yellow with dark markings and with pale setulae; tergite 1 with weak median longitudinal suture.

Terminalia: Entirely orange-yellow in colour; epandrium (damaged) and cercus with dark setulae, hypandrium with dark setulae; terminalia not dissected.

Female. Unknown.

Distribution. Zimbabwe.

***Suragina pauliani* Stuckenberg, 1965**

Figs 32, 33, 52

Suragina pauliani Stuckenberg, 1965: 96, figs 1, 2, 5, 6, 9–11; Stuckenberg 1980: 313.

Type material not examined. *Holotype*: Madagascar: 1♂; [Vakinankaratra Region]; Manjakatompo Forest Station [Ankaratra Massif]; [19°21.00'S, 47°18.00'E]; 1700 masl; Jan. 1956; B.R. Stuckenberg leg.; (PBZT).

Type material examined. *Paratypes*: Madagascar: 1♂; Ambatolampy District [Vakinankaratra]; Madagascar Centre, Col de Mahafompeno [Mahafompona Pass]; [19°23.97'S, 47°15.018'E]; 2200–2400 masl; 11–15 Dec. 1957; B.R. Stuckenberg leg.; [on yellow bordered label: Paratype *Suragina pauliani* Stuckenberg, 1965]; NMSA-DIP 028172) (NMSA). 1♂2♀; [Vakinankaratra]; Ankaratra Massif, Manjakatompo Forest Station; [19°21.00'S, 47°18.00'E]; 1700 masl; Jan. 1956; B.R. Stuckenberg leg.; (♂: NMSA-DIP 028173; 2♀: NMSA-DIP 028174, 158441) (NMSA).

Diagnosis. A more compact and hirsute species compared to other Afrotropical *Suragina*. The males have the head narrowly dichoptic, with the frons distinctly velvety-black in appearance, much like in females. *Suragina pauliani* has its thorax brown for the most part, the abdomen orange-yellow with dark subtriangular dorsal and elongated lateral markings throughout. It differs from the other two Madagascan endemics in colouration: *S. milloti* is a mostly orange-yellow species and a comparatively more slender species, whereas *S. bilobata* Muller, sp. nov. is a blackish species with a unique bilobed 1st flagellomere.

Redescription. ***Measurements:*** Wing span: ♂ 6.6–7.5 mm; ♀ 7.8–7.9 mm; body length: ♂ 7.6–8.4 mm; ♀ 7.8–8.2 mm; wing span to body length ratio (avg.): ♂ 0.88; ♀ 0.99.

Male (Fig. 32).

Head: Brown colour, with grey pruinosity on majority of head; eye bare; narrowly dichoptic, frons at narrowest as wide as anterior ocellus, widening towards antennal bases; ommatidia of similar size; lateral edge of eye without indentation; ocellar tubercle slightly more elevated than frons, dark brown to blackish with some short dark setulae; vertex grey pruinose, dark brown when viewed posterodorsally, with long dark setulae; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye (margin less indented than in ♀); dorsal inner edge of eye without discernible paired dark markings; occiput with same greyish pruinosity as rest of head, except for paired narrow subrectangular dark brown almost black markings with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput with short dark setulae; lateral margins of occiput with pale setulae; lower occiput with long pale setulae, these continue ventrally on head to base of mouthparts that have similar long pale ventral setulae; frons dark velvety-brown from ocellar triangle down to a small area above antennal bases that is greyish; dark part of frons with conspicuous dark proclinate setulae, lower grey part of frons with some pale setulae; face and gena silvery-grey with pale setulae; clypeus brown with some greyish pruinosity, bare; face separated from clypeus by a prominent, deep suture on anterior and lateral edges; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile; antennal bases separated ca 0.5× width of scape, with slight longitudinal groove; scape, pedicel, 1st flagellomere brown with some whitish pruinosity, 2nd flagellomere brown; 1st flagellomere reniform, only slightly larger than pedicel and scape; 2nd flagellomere arista-like; scape and pedicel with dark dorsal setulae, pedicel with setulae dorsally and ventrally, scape with setulae only on dorsal surface; palpus blackish with some sparse greyish pruinosity, well-developed, ca 0.5× length of proboscis, with dark setulae; proboscis blackish-brown with long dark setulae and some scattered shorter dark setulae.

Thorax: Brown ground colour; median dorsal surface of scutum with short dark setulae, postsutural surface with long pale setulae; postsutural setulae longer than presutural setulae; postpronotal lobe orange-yellow with long dark setulae; scutum mostly dark brown with two dorsocentral brownish-grey pruinose vittae running to middle of scutum in dorsal view; postalar wall and callus appearing orange-yellow; scutellum almost entirely orange-yellow except for brown basal margin, median surface with short dark setulae, apical margin with long pale setulae; pleura mostly blackish-brown with greyish pruinosity, except for posterior surface of anepimeron and entire katatergite that are yellowish-brown with similar pruinosity; notopleuron greyish pruinose with long dark setulae; area surrounding anterior and posterior spiracle orange-yellow, postspiracular scale orange-brown; anterior spiracle bare posteriorly; proepisternum, pronotum similar in appearance to aforementioned pleura; proepimeron, proepisternum, anepisternum, parts of anepimeron and entire katatergite with pale setulae; rest of pleura bare; postscutellum dark brown.

Legs: Fore and hind coxae brown on anterior surface and orange-yellow posteriorly; mid coxa brown on majority of surface, orange-yellow on apical posterior surface; all coxae with long pale setulae on anterior surface, in addition fore

coxa has long pale setulae on posterior surface and hind coxa with long pale setulae on lateral apical edges, and with well-developed anterior apical point; all trochanters brown with short dark setulae; fore and mid femora entirely orange-yellow, hind femur orange-yellow with dark brown band on middle of hind femur; fore and mid tibiae orange-yellow and apically darker, hind tibia mostly dark brown, yellowish-brown at base and apex; fore and mid tarsi brownish, hind tarsi darker brown with more yellowish-brown terminal tarsal segments; fore and mid femora covered with pale setulae on almost all surfaces except for dorso-apical and posteroventral surface with some short dark setulae, hind femur with mixed long pale and dark setulae on dorsal and ventral surfaces, basally with long pale setulae, anteriorly with short setulae and posteriorly with longer setulae; hind leg overall stouter than remaining legs; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore and mid tibiae covered in short dark setulae, hind tibia with longer dark setulae; hind basal tarsal segment with long dark posterior setulae; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; hind tarsal segments 1.1× as long as hind tibia; tibial spur formula 0:2:2.

Wing: Overall slight light brown suffused appearance; with a dark brown stigma over area of veins R_1 and R_{2+3} and cell r_1; veins brown; substigmal marking extends down over base of cell r_{2+3}, apex of cells *br* and *bm*, base of cells r_5 and m_2, crossvein *r–m* and basal third of discal cell; additional darker suffusion over majority of cell *br*; hyaline appearance in cell *cua*, apical two-thirds of discal cell, base of cell r_4, post basal half of cell r_5; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere orange-yellow with a brownish knob and very short dark setulae.

Abdomen: Overall orange-yellow colour; tergites 1–5 with broad dark brown subtriangular median vittae, remaining tergites with only a slight median marking; tergites 1–3 with long pale setulae, remaining tergites with shorter dark setulae; tergites 1–7 with dark lateral markings and especially on tergites 1–5 with prominent long pale setulae; sternites orange-yellow with pale setulae; tergite 1 without median longitudinal suture.

Terminalia: Epandrium orange with dark setulae, hypandrium orange-brown, cercus blackish, both with dark setulae, terminalia not dissected.

Female (Fig. 33): Similar to ♂ except for the following:

Head: Widely dichoptic; dorsal margin of eye more indented than in ♂; vertex wider than in ♂, dorsal inner edge of eye brownish-grey pruinose, appearing as an extension of vertex surrounding ocellar tubercle; occiput with paired dark brown almost black subtriangular (more narrow and subrectangular in ♂) markings on upper occiput; frons similar in colour appearance to that of ♂ but at narrowest ca 1.6× width of ocellar tubercle, widening slightly towards antennal base, gradually fading at edges into bronzy brown colour; face separated anteriorly from clypeus by shallow transverse suture, deeper sutures laterally; face slightly visible in profile; 1st flagellomere comparatively much larger than in ♂; scape ca 2× as long as pedicel; 1st flagellomere ca 2× as long as pedicel.

Thorax: Scutum slightly lighter than in ♂, otherwise with similar appearance; postpronotal lobes with similar dark setulae as in ♂ but lobe with long pale setulae

as well; pleura reddish-brown with grey pruinosity, with similar patterning as in ♂ just lighter; postspiracular scale orange in colour; scutellum with only pale setulae.

Legs: Coxae similar to ♂, just overall lighter in colour; hind fermur with median band light brown; fore and mid legs yellow with tarsi brownish, but basal two-thirds of basitarsi yellowish; fore tarsal claws symmetrical; hind leg with general orange-yellow colour on segments, including tarsi; hind femur with mix of short pale and dark setulae compared to ♂; hind tarsal segments 0.9× as long as hind tibia.

Wing (Fig. 52): Overall brownish suffusion, with upper third of wing somewhat darker suffused, stigma also markedly lighter compared to ♂; no prominent dark suffused substigmal markings running longitudinally on wing as in ♂.

Abdomen: Similar pattering and colour as ♂; lateral dark markings on tergites appearing as more uniform and continuous dark marginal line.

Terminalia: Cercus orange-brown with pale setulae; terminalia not dissected.

Distribution. Madagascar.

Suragina pilitarsis (Lindner, 1925)

Atherix pilitarsis Lindner, 1925: 22.
Suragina pilitarsis: Stuckenberg 1980: 313.

Type material not examined. See remarks, no additional material available.

Remarks. *Suragina pilitarsis* (Lindner, 1925) was regarded as "unplaced and doubtful" by Yang et al. (2016: 446), however, without justification. Based on Lindner's description of characters, especially the characteristic velvety-black upper frons, slim body and elongated legs in combination with the overall colour characteristics, the species described is clearly a *Suragina*. The type material of *S. pilitarsis* was recorded as being in "Hamburger Museum". The only additional data associated with it is "Gaboon, leg. Soyaux 1881". Unfortunately, the museum was destroyed during World War II, and after communication with the staff at Museum der Natur Hamburg, the type is now recorded as destroyed. No additional material of *S. pilitarsis* is known, and the original description in German is not sufficient to distinguish the species from other Afrotropical species based on the text alone and subsequently the species is excluded from the identification key in this paper. Additional material will need to be collected from the country, but without a definitive type locality this could prove difficult.

Suragina semiobscura Muller, sp. nov.

https://zoobank.org/4C3DDF6A-3D5F-4FE0-A4C1-F1BBF48F6992
Figs 34, 53, 86

Type material examined. ***Holotype*:** Uganda • 1♀; Kibale National Park, Kanyawara Makerere University Biological Field Station; 00°33.960'N, 30°21.267'E; 1495 masl; 12–26 Aug. 2008; S. van Noort leg.; UG08-KF1-M11; Malaise trap, secondary mid-altitude Rainforest, marshy area; (SAM-DIP-A018385).

***Paratypes*:** Central African Republic • 1♀; Prefecture Sangha-Mbaéré; Réserve Spéciale de Foret Dense de Szanga-Sangha, 12.7 km 326°NW Bayanga;

Figures 34–36. *Suragina* Walker spp. lateral habitus: **34** *S. semiobscura* Muller, sp. nov. ♀ holotype (SAM-DIP-A018385); *S. zombaensis* Muller, sp. nov.: **35** ♂ paratype (NMSA-DIP 158421) **36** ♀ paratype (NMSA-DIP 158415). Scale bars: 1 mm.

03°00.27'N, 16°11.53'E; 420 masl; 12–13 May 2001, S. van Noort leg.; Malaise trap, CAR01-M109, Lowland Rainforest; (SAM-DIP-018431). Kenya • Western Province; Kakamega Forest, nr. KFS HDQTRs; 00°14.2452'N, 34°51.9642'E; 1620 masl; 2–16 May 2017; R. Copeland leg.; Indigenous forest; Malaise trap; (ICIPE 4020-26) • Western Province; Kakamega Forest, nr. KFS HDQTRs; 00°14.2452'N, 34°51.9642'E; 1620 masl; 9 Apr.–3 May 2017; R. Copeland leg.; Indigenous forest; Malaise trap; (ICIPE) • Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N, 34°53.1198'E; 1630 masl; 13–27 Aug. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE) • Western Province; Kakamega Forest, nr. Rondo Guest House; 00°13.6602'N,

34°53.1198'E; 1630 masl; 8–22 Oct. 2006; R. Copeland leg.; across small permanent stream; Malaise trap; (ICIPE).

Holotype deposited in SAM and paratypes deposited as per listed institutional codens in citations above: ICIPE, SAM.

Diagnosis. *Suragina semiobscura* Muller, sp. nov. has its thorax dark brown to blackish with varying levels of bluish-grey pruinosity throughout, except for a yellow scutellum. The wing, uniquely, has its anterior half dark brown suffused, and posterior half light brown suffused, giving a two-toned appearance (Fig. 53). The species is most similar to *S. bezzii* (See *S. bezzii* diagnosis), but the latter has the scutellum brown and tergites 4–6 orange, compared to dark brown in *S. semiobscura* Muller, sp. nov.

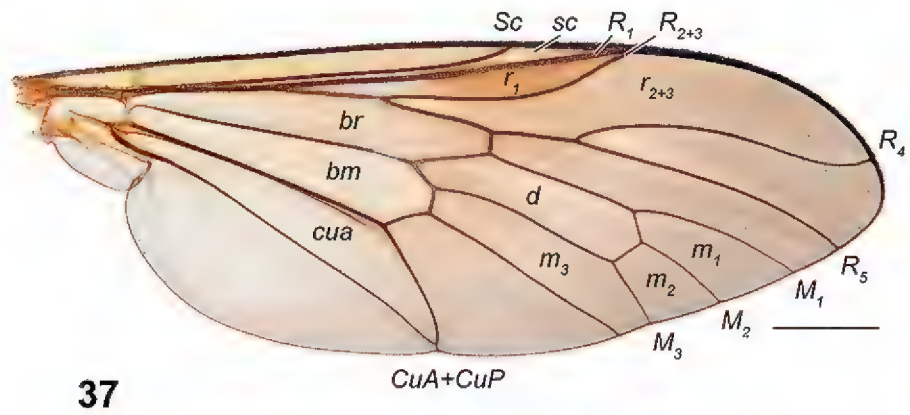
Description. ***Measurements*** (♀ n = 2): Wing span: 9.9–10.5 mm (avg. 10.2 mm); body length: 9.2–9.5 mm (avg. 9.4 mm); wing span to body length ratio (avg.): 1.1.

Male. Unknown.

Female (Fig. 34).

Head: Black ground colour, with bluish-grey pruinosity on majority of head; eye bare; dichoptic; ommatidia of similar size; lateral edge of eye without any indentation; ocellar tubercle elevated, visible in profile, same velvety-black as upper half of frons, with short dark setulae; vertex bluish-grey pruinose, with dark setulae; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye; dorsal inner edge of eye with bluish-grey markings; occiput with silver-grey pruinosity; paired narrow black markings with short dark setulae on upper occiput, abutting posterior margin of eyes, flanking vertex; upper occiput otherwise with pale setulae; lower occiput lateral margins and medial surface with long pale setulae, these continue ventrally on head to mouthparts that have mix of pale and dark ventral setulae; lower half of frons bluish-grey pruinose, velvety-black from ocellar tubercle to lower half of eye; frons running almost parallel, widening towards antennal base; frons setulae dark on upperhalf, pale on lower half; face and gena with silver-grey pruinosity, face with pale setulae, gena with dark setulae; clypeus with bluish-grey pruinosity, bare; face barely separated anteriorly from clypeus by shallow transverse suture, with deeper sutures laterally; face much reduced in appearance, bulging laterally when viewed in profile; clypeus visible in profile; antennal bases separated ca 1× width of scape, with slight longitudinal groove running between; scape, pedicel, and 1st flagellomere orange-yellow with some whitish pruinosity; pedicel in some specimens browner dorsally; 2nd flagellomere dark brown; scape and pedicel of similar size; 1st flagellomere reniform, ca 1.5× as tall as pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus orange-brown with dense dark setulae ventrally and whitish pubescence dorsally; ca 0.5× length of proboscis; proboscis ca same length as head height; proboscis orange-brown to dark brown, setulae dark with some scattered short pale setulae.

Thorax: Scutum dark brown, median vittae unknown due to damage from preservation method; pronotum orange-yellow dorsally, with lateral margins dark brown; postpronotal lobe yellow, slightly whitish pruinose, setulae pale; notopleuron dark brown with bluish-grey pruinosity with long pale setulae; postalar wall yellowish-brown with ridge dark setulose, postalar callus brown; scutellum yellow with long pale setulae, apical margin with long dark setulae;



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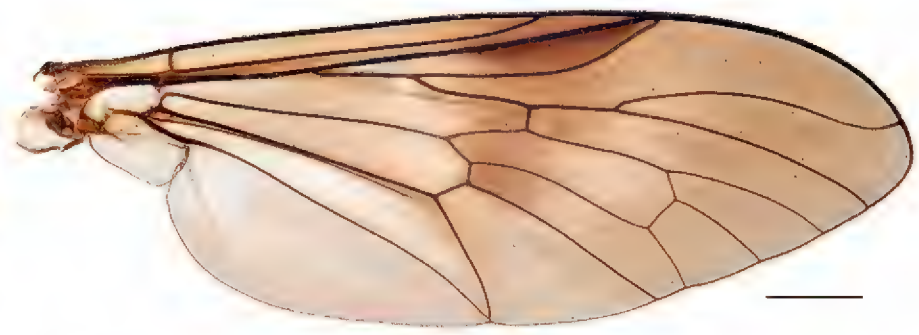

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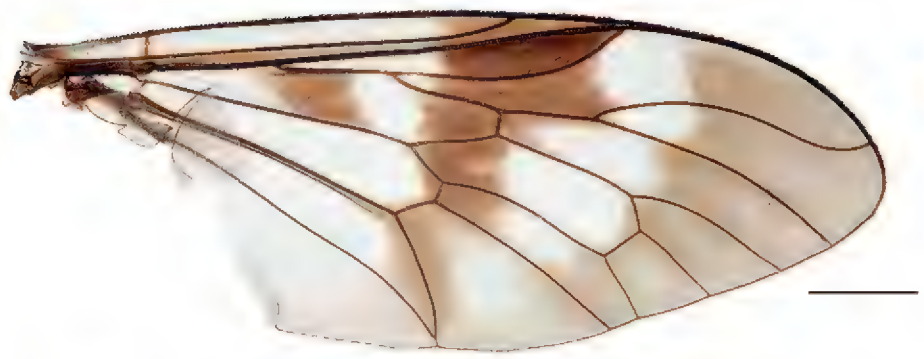

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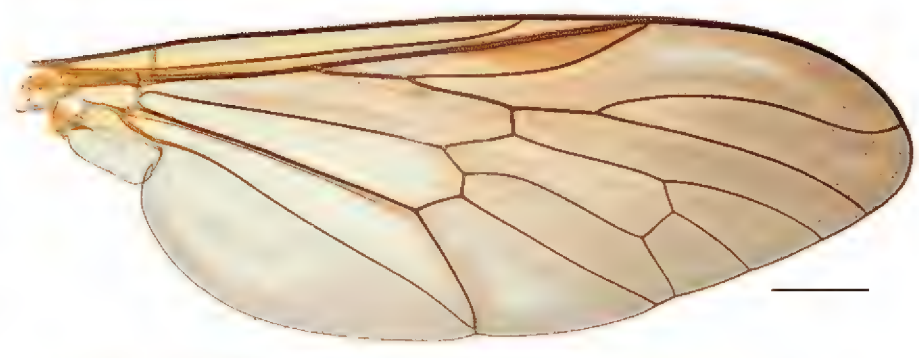

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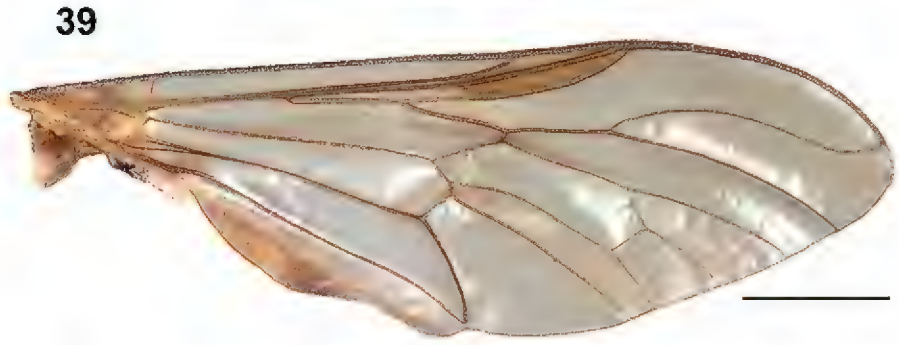

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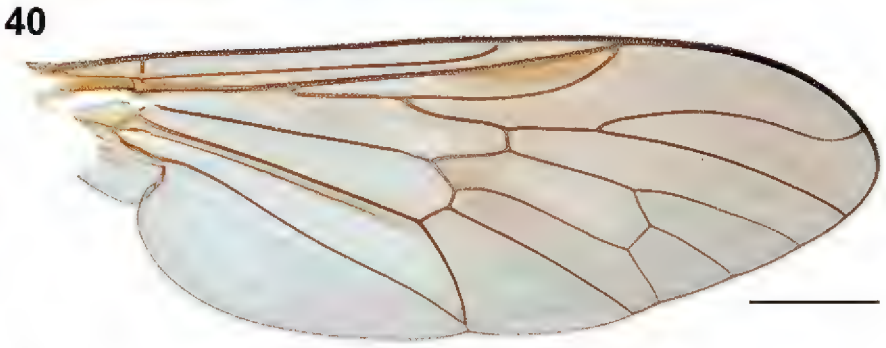

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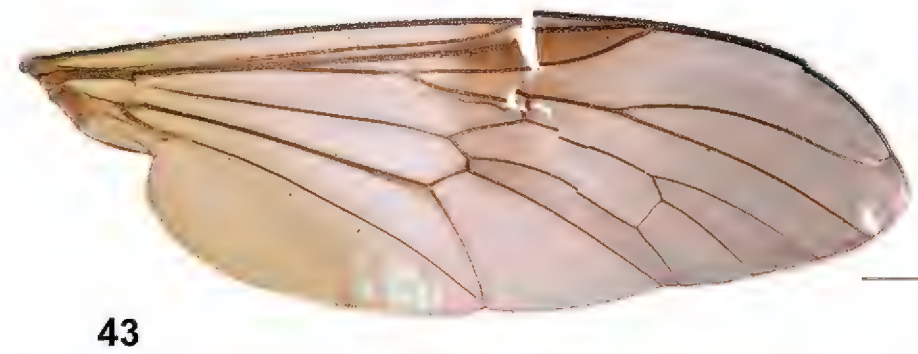
Figures 37–42. *Suragina* Walker spp. wing dorsal view: **37** *S. agramma* (Bezzi) ♀ (BMSA(D)124627) **38** *S. bezzii* (Curran) ♂ (SAM-DIP-A018410) **39** *S. bilobata* Muller, sp. nov. ♀ paratype (CSCA) **40** *S. copelandi* Muller, sp. nov. ♀ paratype (BMSA(D)83423); *S. binominata* (Bequaert): **41** holotype ♂ (MLUH) **42** ♀ (NMSA-DIP 158446). **41** Copyright ZNS Halle, January 30, 2024. Abbreviations: *br* – basal radial cell; *bm* – basal medial cell; *cua* – anterior cubital cell; *CuA+CuP* – anterior branch of cubital vein + posterior branch of cubital vein; *d* – discal cell; M_1 – first branch of media; m_1 – first medial cell; M_2 – second branch of media; m_2 – second medial cell; M_3 – third branch of media; m_3 – third medial cell; R_1 – anterior branch of radius; r_1 – first radial cell; R_{2+3} – second branch of radius; r_{2+3} – second radial cell; R_4 – upper branch of third branch of radius; R_5 – lower branch of third branch of radius; Sc – subcostal vein; sc – subcostal cell. Scale bars: 1 mm.

scutum setulae unknown, rubbed bare; all pleura dark brown with bluish-grey pruinosity, except for meron and anepimeron markedly less dusted; anepimeron with long pale setulae, anatergite and meron bare; proepisternum with pale setulae and proepimeron with dark setulae; anterior and posterior spiracles and surroundings yellowish and dark brown respectively, bare; postspiracular scale dark brown; postscutellum dark brown with slight bluish-grey pruinosity.

Legs: Fore coxa yellow with apex brown, mid and hind coxae brown with slight bluish-grey pruinosity on surface; fore coxa with long pale setulae anteriorly and apically with short dark setulae apically; mid and hind coxae with dark setulae on anterior surfaces, mid coxa with pale setulae at base; hind coxa with dark setulae on anterior edge surrounding well-developed anterior apical point, lateral apical edges with longer pale setulae; all trochanters yellowish-brown with short dark setulae; fore femur yellow on at least basal half, dorsally with dark brown apex, some specimens with apical half to third dark brown; mid femur with apical third and extreme base dark brown, yellow medially; hind femur with dark brown medial band, basal quarter yellow, apical quarter orange-yellow; fore tibia dark brown, mid tibia yellow, hind tibia brown with apical third yellowish-brown; fore tarsi dark brown, mid and hind tarsi yellowish-brown with basal segments lighter; fore tarsal claws, empodium and pulvilli symmetrical;



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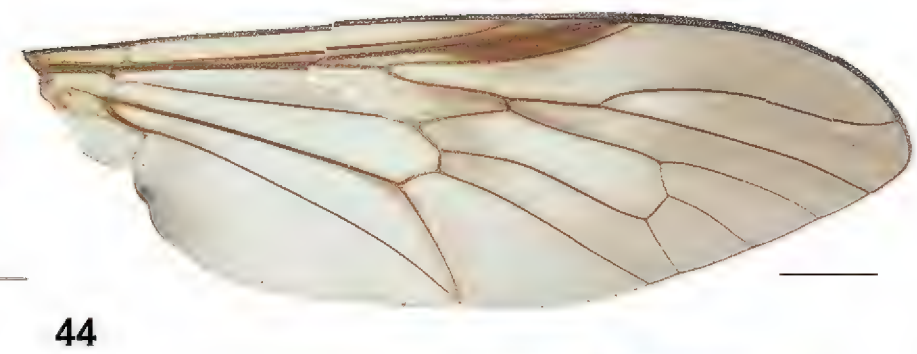

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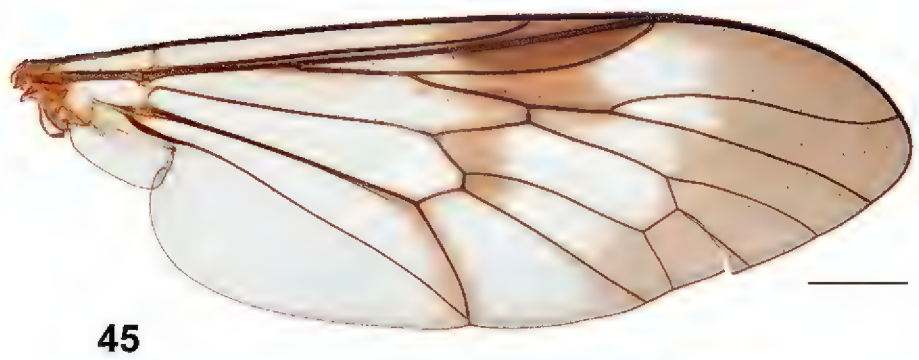

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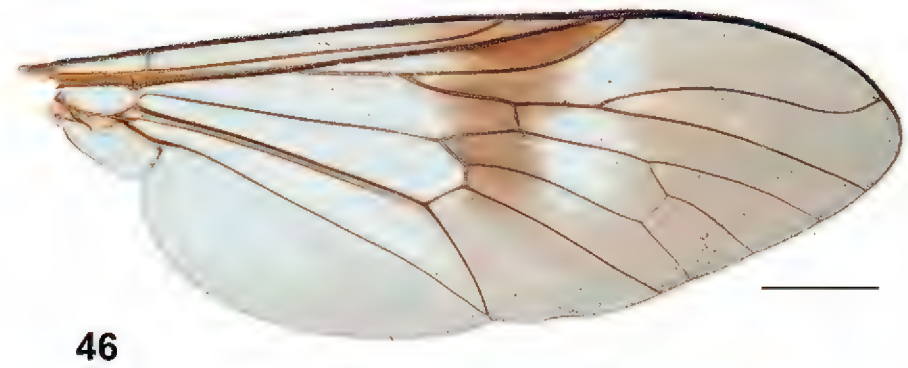

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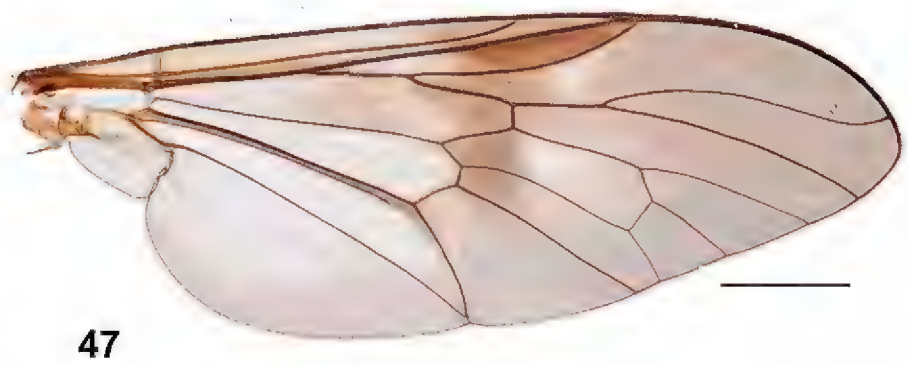

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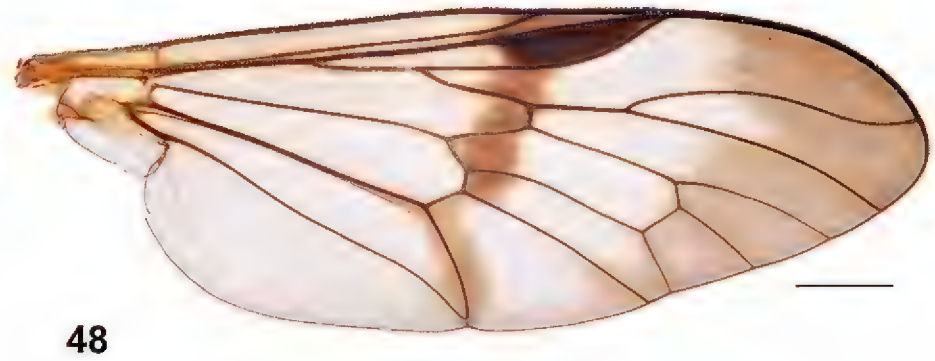

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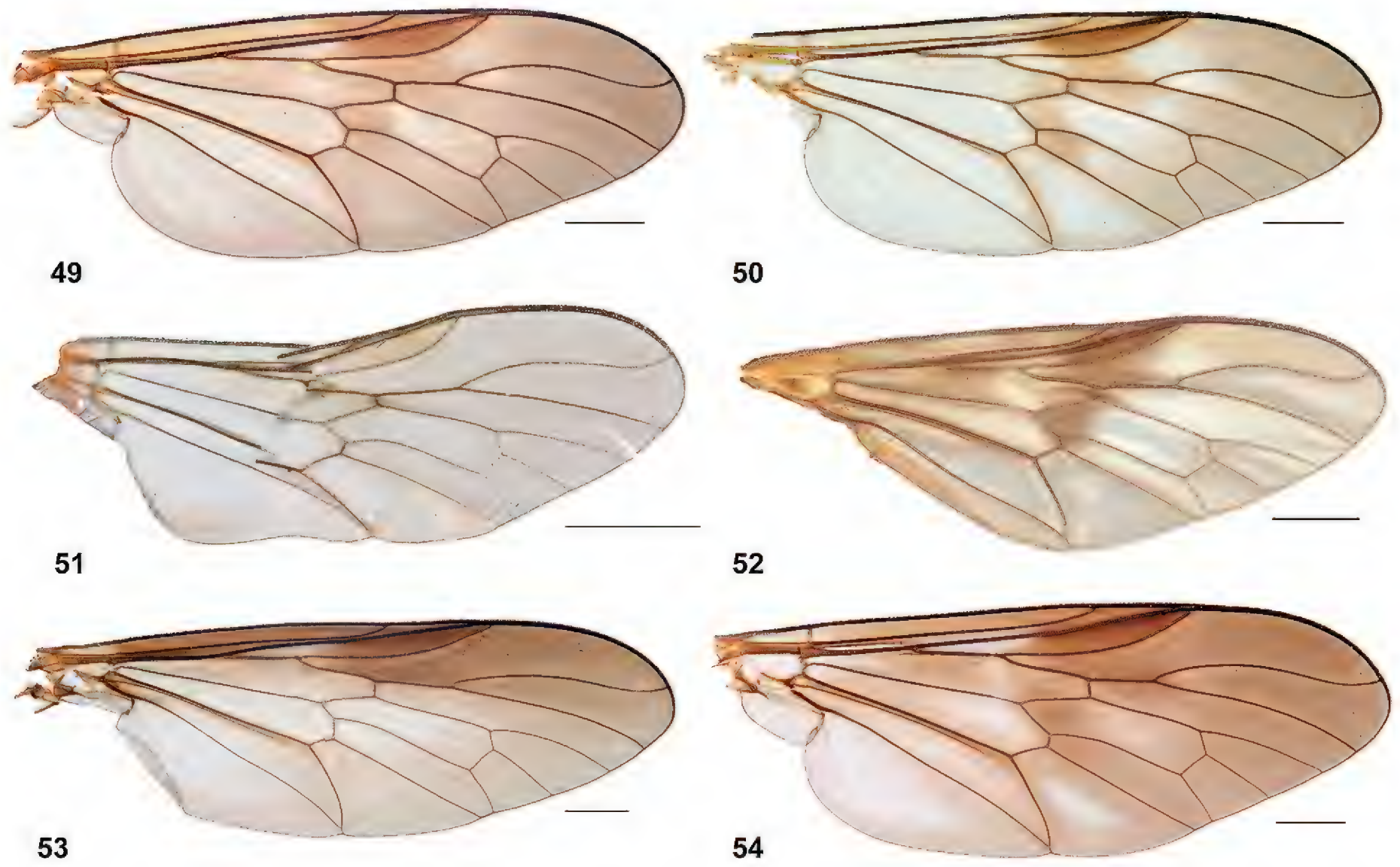
Figures 43–48. *Suragina* Walker spp. wing dorsal view: **43** *S. dimidiatipennis* (Brunetti) ♀ holotype (NHMUK 014064158) **44** *S. falsa* Oldroyd ♀ (NHMUK014064160) **45** *S. freidbergi* Muller, sp. nov. ♀ paratype (BMSA(D)92158) **46** *S. liberiaensis* Muller, sp. nov. ♀ paratype (NMSA-DIP 158445) **47** *S. malavaensis* Muller, sp. nov. ♂ (ICIPE) **48** *S. milloti* (Séguy) ♀ (CSCA). **43, 44** Copyright NHMUK under CC BY 4.0. Scale bars: 1 mm.

fore tarsi with long, somewhat curved sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; fore femur with long pale setulae on antero- and posteroventral surface, dorsally with short pale setulae, apically with dark setulae on dark dorsal marking; mid femur with short pale setulae and some longer pale setulae on ventral surface; hind femur with a mix of pale and dark setulae, setulae longer on ventral apex; all tibiae with short dark setulae; hind leg overall stouter than remaining legs; hind tarsal segments 0.9–1.0× as long as hind tibia; tibial spur formula 0:2:2.

Wing (Fig. 53): Upper half of wing dark brown suffused, lower half light brown suffused; dark brown stigma over apex of veins R_1 and R_{2+3} and cells *sc*, r_1, base of cell r_{2+3}; entirety of cells r_{2+3} and r_4 dark brown suffused, rest of radial and marginal cells and veins light brown suffused, including discal cell; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed a short distance from wing margin; cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk orange-brown with knob darker brown, with some short and dark setulae.

Abdomen: Tergite 1 yellow, posterior margin with a dark brown marginal band, narrowing around medial longitudinal suture; tergite 2 yellow with dark brown median longitudinal band appearing to extend from dark marginal band on tergite 1 and continuing down to tergite 3, additionally tergite 2 with paired narrow dark brown lateral markings; tergite 3 with some yellow markings on anterior margin; remaining tergites entirely dark brown; sternites 1–3 yellow, sternite 3 dark brown on posterior third, rest of sternites dark brown; tergite 1 with long pale setulae anteriorly and short dark setulae on dark posterior markings, tergite 2 with short dark setulae; remaining tergites with a mix of



Figures 49–54. *Suragina* Walker spp. wing dorsal view: **49** *S. monogramma* (Bezzi) ♀ (BMSA(D)129988) **50** *S. mulanjeensis* Muller, sp. nov. ♀ (BMSA(D)92374) **51** *S. nigromaculata* Muller, sp. nov. ♂ holotype (NHMUK 014064156) **52** *S. pauliani* ♂ paratype (NMSA-DIP 028172) **53** *S. semiobscura* Muller, sp. nov. ♀ paratype (ICIPE) **54** *S. zombaensis* Muller, sp. nov. ♀ paratype (NMSA-DIP 158451). **51** Copyright NHMUK under CC BY 4.0. Scale bars: 1 mm.

short pale and dark setulae on dorsal surfaces, all tergites laterally with long pale setulae; sternites with pale setulae on yellow segments, dark setulae on dark segments.

Terminalia (Fig. 86): Cercus dark orange-yellow with pale setulae; genital fork with distal apodeme ending broadly truncated and sharply bilobate; median lobe with deep and wide emargination; paired apical lobes with somewhat slender appearance, inner surface darkened with clustered microtrichia at apex; arms gradually rounded, wide, similar to apical lobes in width; three ovate and sclerotised spermathecae.

Etymology. From the Latin *semi* "half" and *obscurus* "dark or shady", describing the species' wing that has its anterior half of wing dark brown suffused, contrasting with the lighter brown suffused posterior half. Feminine noun in the nominative singular case.

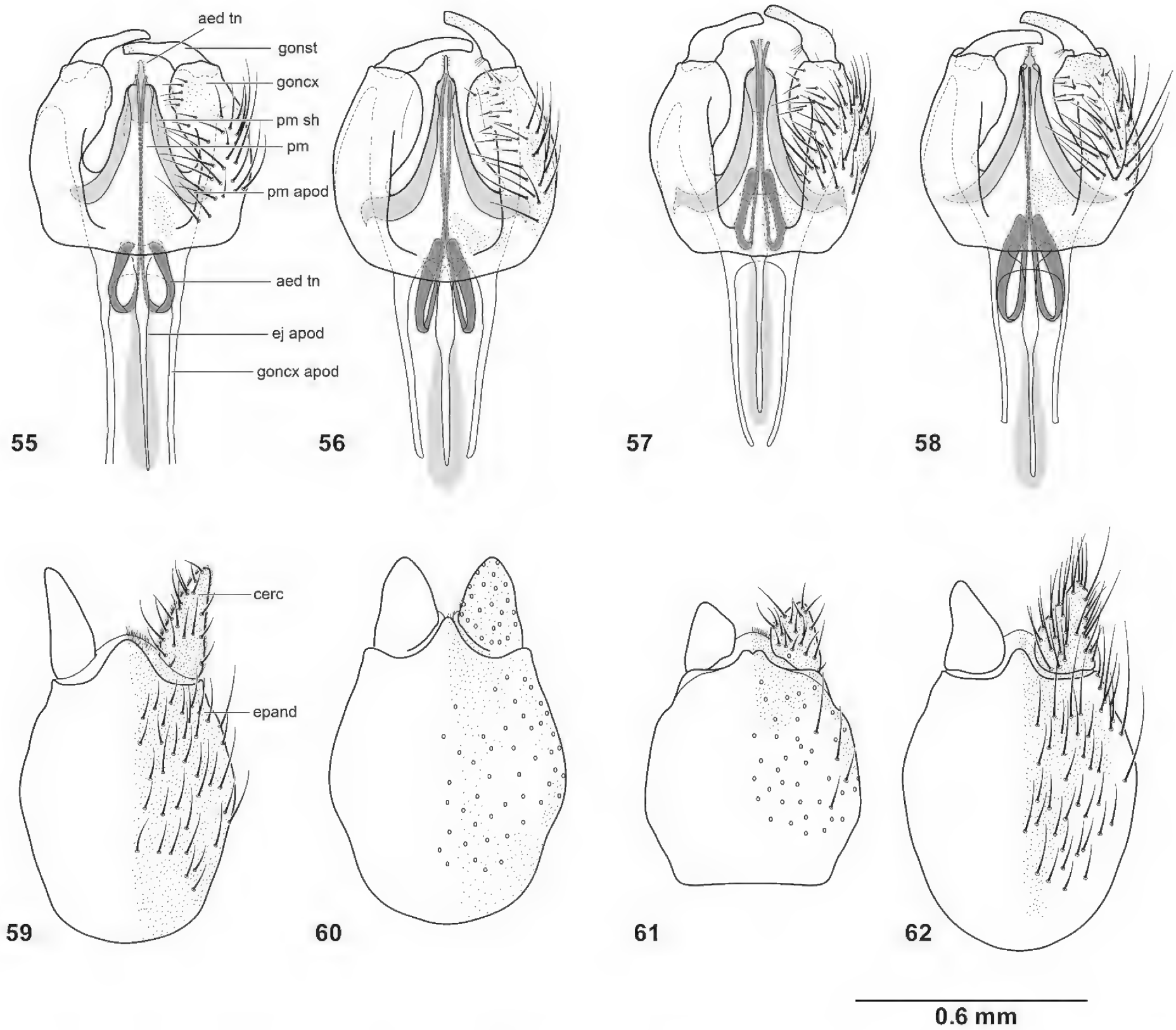
Distribution. Central African Republic, Kenya, Uganda.

Suragina zombaensis Muller, sp. nov.

https://zoobank.org/80FD6CC3-1332-469B-8FB6-0C45CD0E06A5

Figs 35, 36, 54, 72, 74, 87

Type material examined. *Holotype*: Malawi • 1♂; Zomba; 1535Ad; [15°23.00'S, 35°20.00'E]; 24–27 Nov. 1980; J.G.H. Londt & B.R. Stuckenberg leg.; (NMSA-DIP 158422).



Figures 55–62. *Suragina* Walker spp. male terminalia, ventral view (**55–58**) and epandrium with cerci, dorsal view (**59–62**): **55, 59** *S. agramma* (Bezzi) (ICIPE) **56, 60** *S. bezzii* (Curran) (SAM-DIP A018382) **57, 61** *S. binominata* (Bequaert) (NMSA-DIP 028165) **58, 62** *S. copelandi* Muller, sp. nov. paratype (BMSA(D)83425). Abbreviations: aed tn – aedeagal tine; cerc – cercus; ej apod – ejaculatory apodeme; epand – epandrium; goncx – gonocoxite; goncx apod – gonocoxal apodeme; gonst – gonostylus; pm – paramere; pm apod – parameral apodeme; pm sh – parameral sheath. Scale bar (applicable to all illustrations): 0.6 mm.

***Paratypes*:** 3♂4♀; Same data as holotype; (♂: NMSA-DIP 158420, 158421, 158450; ♀: NMSA-DIP 158417, 158418, 158419, 158451) • 1♀; Ntchisi Forest reserve; 1334Ac; 13°22.00'S, 34°00.00'E]; 1500 masl; 3–4 Dec. 1980; J.G.H. Londt & B.R. Stuckenberg leg.; Montane forest, woodland; (NMSA-DIP 158415).

Holotype and paratypes deposited in NMSA.

Diagnosis. *Suragina zombaensis* Muller, sp. nov. has its thorax almost entirely brown with bluish-grey pruionosity, the scutellum with apical margin yellow. The males and females are similarly coloured (Figs 35, 36), except for the males having the lateral margins of tergites 3 and 4 yellow compared to dark brown in the female. Tergite 2 in both sexes has dark vitta medially, flanked by brownish-yellow colouration, giving it a fenestrated appearance. The wing of *S. zombaensis* Muller, sp. nov. is most similar to that of *S. dimidiatipennis*, being brown suffused on apical half (Fig. 54 vs Fig. 43). *Suragina zombaensis* Muller, sp. nov.

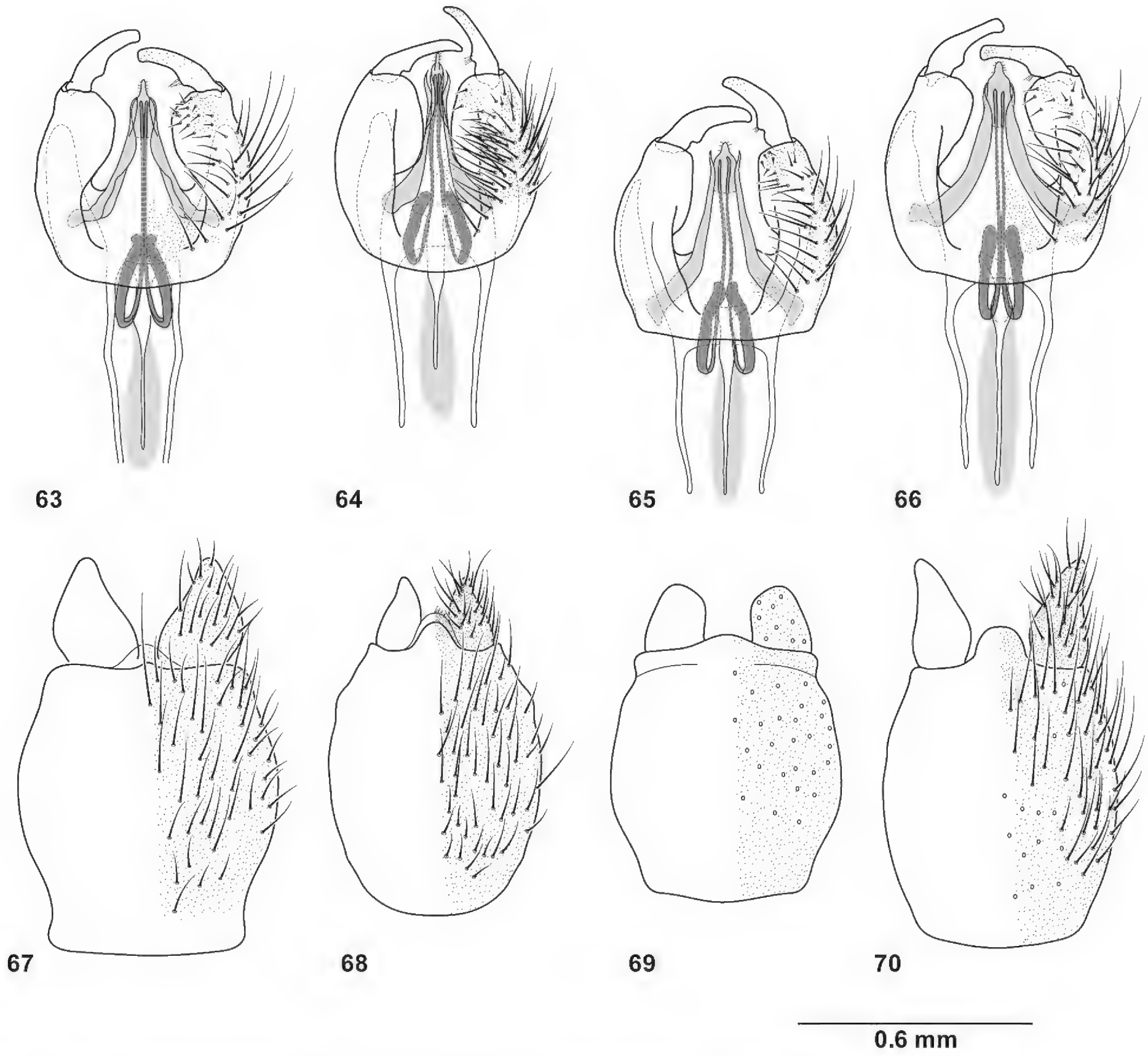
(Figs 35, 36), however, differs from *S. dimidiatipennis* (Fig. 18) in being a much darker species, with mostly dark abdominal tergites with grey dusted apical margins, compared to *S. dimidiatipennis* having a mostly orange-yellow to brown abdomen without any dark markings. *Suragina freidbergi* Muller, sp. nov. is also similar to *S. zombaensis* Muller, sp. nov. (see *S. freidbergi* Muller, sp. nov. diagnosis).

Description. ***Measurements*** (♂ n = 2, ♀ n = 2): Wing span: ♂ 7.7–8.7 mm (avg. 8.2 mm); ♀ 8.7–9.8 mm (avg. 9.3 mm); body length: ♂ 8.3–10.5 mm (avg. 9.4 mm); ♀ 8.9–9.6 mm (avg. 9.2 mm); wing span to body length ratio (avg.): ♂ 0.97; ♀ 0.99.

Male (Fig. 35).

Head: Blackish-brown ground colour, with bluish-grey pruinosity on majority of head; eye bare; holoptic; ommatidia on lower and upper quarter of eye smaller than those on rest of eye; lateral edge of eye with slight indentation, and an apparent tubercle next to indentation; ocellar tubercle barely visible in profile, blackish-brown in colour with slight brownish- to bluish-grey pruinosity and short dark setulae; vertex blackish-brown with bluish-grey pruinosity and long dark setulose; anterior ocellus larger than posterior pair; ocellar tubercle in front of dorsal margin of eye, not placed as deeply towards middle of head as in ♀; dorsal inner edge of eye abutting ocellar tubercle; occiput with same bluish-grey pruinosity as rest of head; paired narrow subrectangular black markings with short dark setulae on upper occiput, widening only slightly towards lateral margin of head in some specimens, abutting posterior margin of eyes, flanking vertex; upper occiput with pale setulae; lower occiput with long pale setulae, these continue ventrally on head to mouthparts that have similar long ventral setulae; frons bluish-grey pruinose, velvety-black from ocellar tubercle to before lower half of eye when viewed anteriorly, when viewed anteroventrally entire frons appears blackish-brown with a slight velvety appearance; frons widening from where eyes touch down to antennal base; frons with long dark setulae (setulae can appear pale depending on viewing angle); face and gena bluish-grey, lateral margins of face with long pale setulae, gena with long dark setulae; clypeus dark brown with bluish-grey pruinosity, bare; face separated anteriorly from clypeus by a deep transverse suture, similar to lateral sutures; face not appearing to bulge laterally when viewed in profile; clypeus visible in profile, face not; antennal bases separated ca 0.7× width of scape, with slight longitudinal groove running between; scape dark brown and pedicel orange-brown, both with silvery pruinosity; 1st flagellomere orange-yellow, with sparse silvery pruinosity; 2nd flagellomere dark brown; scape 1.5× length of pedicel; 1st flagellomere reniform, ca 1.5× size of pedicel; 2nd flagellomere arista-like; pedicel with dark dorsal and ventral setulae, similar in size, scape with only dark dorsal setulae; palpus orange-yellow with dense bluish-grey pruinosity, with dark setulae throughout; palpus ca 0.5× length of proboscis; proboscis slightly shorter than head height; proboscis brown to dark brown in colour, prementum brown, proboscis with long pale setulae basoventrally and dark setulae on rest of ventral and dorsal surfaces, except for short pale setulae apically.

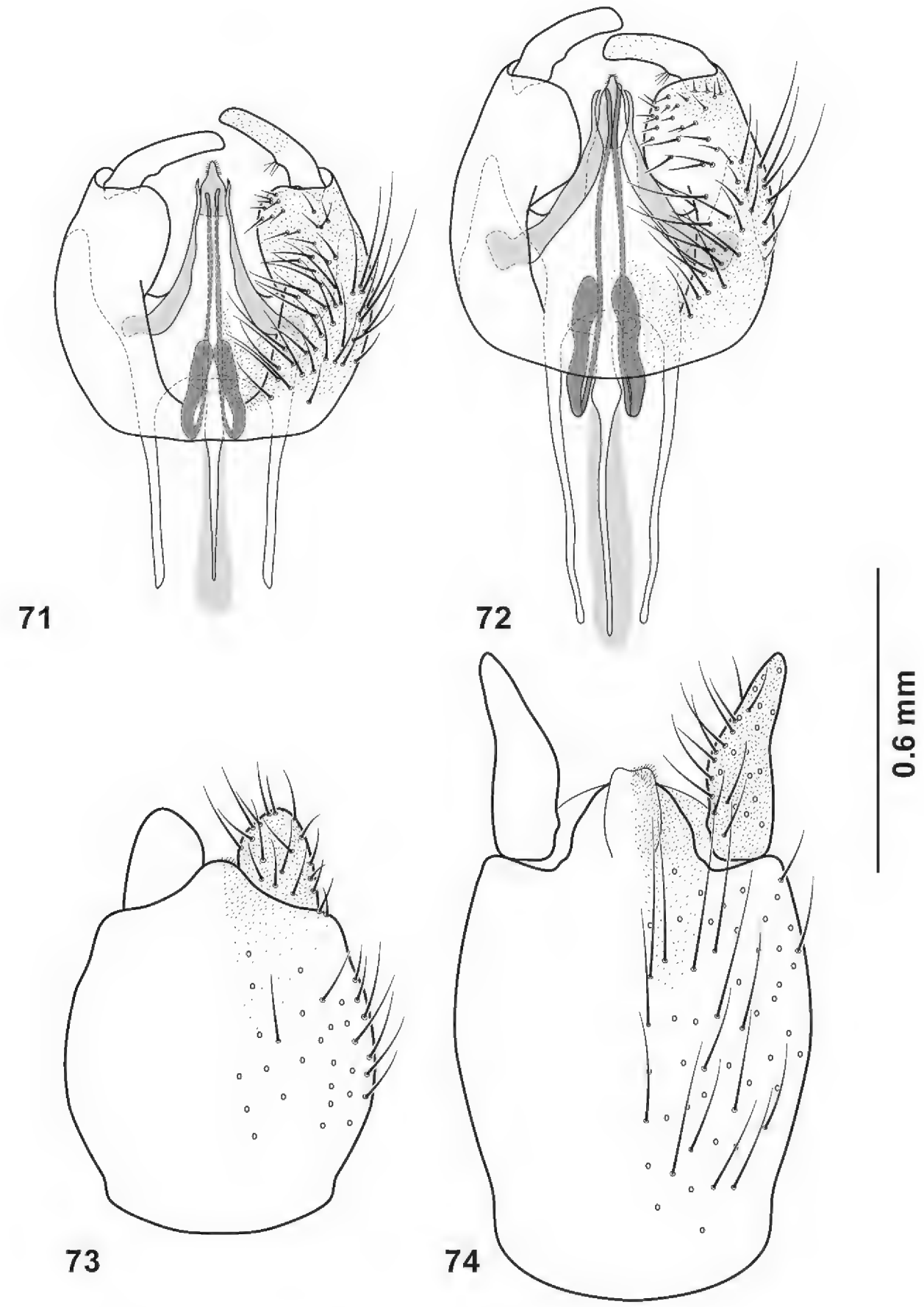
Thorax: Scutum brown, mostly with short dark setulae, with two dorsocentral whitish-brown pruinose vittae running from posterior half of postpronotal lobes to transverse suture; prescutellar area bluish-grey pruinose; pronotum brown with bluish-grey pruinosity and short pale setulae; postpronotal lobe orange-brown, appearing slightly browner dorsally, with sparse bluish-grey pruinosity, setulae



Figures 63–70. *Suragina* Walker spp. male terminalia, ventral view (**63–66**) and epandrium with cerci, dorsal view (**67–70**): **63, 67** *S. freidbergi* Muller, sp. nov. paratype (BMSA(D)92376) **64, 68** *S. malavaensis* Muller, sp. nov. paratype (ICIPE) **65, 69** *S. millo-ti* (Séguy) (CSCA) **66, 70** *S. monogramma* (Bezzi) (NMSA-DIP 028180). Scale bar (applicable to all illustrations): 0.6 mm.

pale; notopleuron bluish-grey pruinose with long pale setulae anteriorly and long dark setulae posteriorly; postalar wall dark brown and postalar callus orange-brown, both with slight bluish-grey pruinosity, supra-alar area with dark setulae, postalar callus with some short pale setulae interspersed between dark setulae; scutellum dark brown with a brownish- to orange-yellow apical margin with long dark setulae; majority of pleura brown with bluish-grey pruinosity, except for anepimeron, anatergite, katatergite and katepimeron orange-brown with bluish-grey pruinosity; proepisternum and proepimeron, katatergite and katepisternum with long pale setulae; anatergite and meron bare; anterior and posterior spiracles whitish-yellow, bare; postspiracular scale orange-brown; postscutellum orange-brown.

Legs: Fore coxa yellowish-brown, mid and hind coxae brown, all three coxae with bluish-grey pruinosity, hind coxa much less pronounced; fore coxal setulae long pale on anterior surface, with dark setulae apically; mid coxal setulae long



Figures 71–74. *Suragina* Walker spp. male terminalia, ventral view (**71, 72**) and epandrium with cerci, dorsal view (**73, 74**): **71, 73** *S. mulanjeensis* Muller, sp. nov. paratype (NMSA-DIP 162049) **72, 74** *S. zombaensis* Muller, sp. nov. paratype (NMSA-DIP 158450). Scale bar (applicable to all illustrations): 0.6 mm.

pale on anterior surface, dark apically; hind coxal setulae dark on anterior edge surrounding well-developed anterior apical point with some scattered short setulae, lateral apical edges with a mix of long pale and dark setulae; all trochanters yellowish-brown with short pale setulae; fore femur almost entirely yellow, except for brown apex; mid femur entirely yellow; hind femur yellow with brown to dark brown median band; fore and hind tibiae brown to dark brown, mid tibia yellow; fore and hind tarsi brown to dark brown, mid tarsi yellow except for terminal 3 segments that are brown; fore tarsal claws asymmetrical, outer claw much larger than inner claw, foreleg empodium ca 2× size of inner pulvillus, outer pulvillus ca 2× length of inner, approaching size of outer claw; fore femur overall with short pale setulae, with long pale setulae on posteroventral surface; mid femur with long pale setulae on ventral surface, otherwise with short pale setulae; hind femur with a mix of pale and dark setulae on dorsal and ventral

surfaces, base of femur with pale setulae; fore tarsi covered with long sensory setulae along antero- and posteroventral surfaces, sensory setulae ca 2× as long as tarsal segment is wide; hind leg overall stouter than remaining legs; hind tarsal segments 0.9–1.0× as long as hind tibia; tibial spur formula 0:2:2.

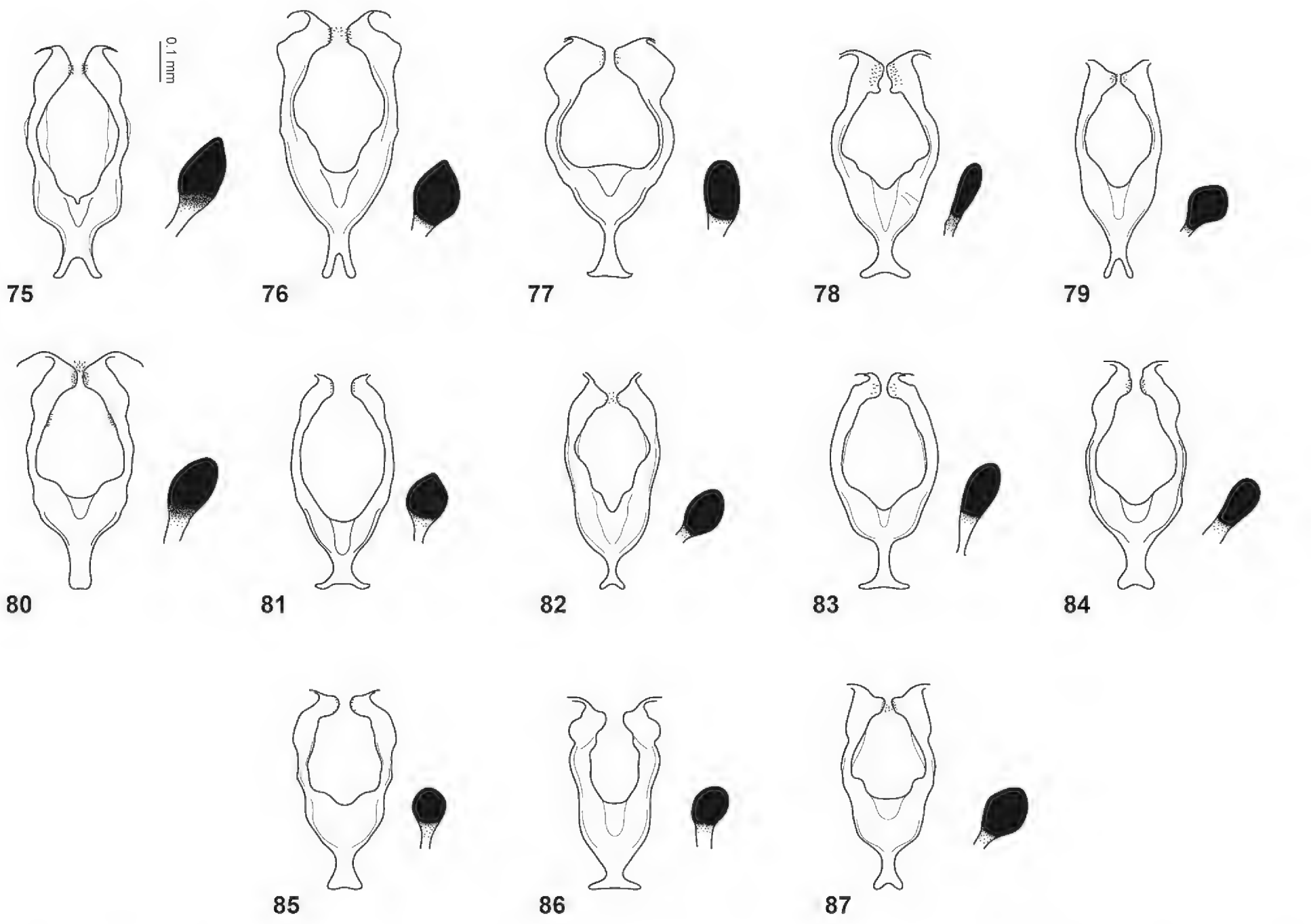
Wing: Brown suffused on majority of surface; dark brown stigma over area of veins R_1 and R_{2+3} and cell r_1, difficult to discern due to surrounding brown suffusion on apical half of wing; preapical parts of cells *br*, *bm* hyaline, most of cell *cua* and anal lobe, and apical two-thirds of discal cell only lightly brown suffused; some specimens with cells r_{2+3} and m_4 having a small hyaline marking in each of their centres; veins dark brown; costa without distinct downward flexure over stigma; cell *cua* closed at wing margin, cell m_3 open, veins M_1, M_2, M_3 present; haltere stalk (except for yellow basal half) and knob dark brown, with a few short dark setulae.

Abdomen: Overall brownish-yellow colour; tergite 1 light brownish-yellow with a dark brown subtriangular dorsal marking surrounded by bluish-grey pruinosity up to lateral margins; tergites 2 and 3 with a dark brown longitudinal rectangular marking, otherwise brownish-yellow, tergite 3 also with a grey pruinose posterior band; tergite 4 with a dark brown subtriangular marking running towards a dark posterior band with greyish pruinosity; tergite 5 entirely dark brown with posterior grey pruinose band; remaining tergites dark brown; tergite 1 medially without a longitudinal suture; tergites with dark setulae dorsally, and long pale setulae laterally up to margins; sternites mostly yellowish, except sternites 4 and 5 dark brown; sternites with short and long pale setulae.

Terminalia (Figs 72, 74): Epandrium and cercus dark brown with dark setulae; gonocoxite, hypoproct and hypandrium with pale setulae; gonostylus almost parallel shaped with truncated apex, outer edge of gonostylus with short setulae, inner edge with protrusion with 4 setulae, apex of gonostylus sparsely covered in microtrichia; gonocoxite widening and appearing more rounded on apical half, apex somewhat flattened, gonocoxite outer and ventral medial surface with long setulae, inner and median surface of upper half with short setulae, lower ventral surface comparatively less setulose; gonocoxite with microtrichia between setulae; parameral apodeme with truncated apex, not reaching base of gonocoxite in ventral view, parameral sheath including parameral apodeme ca 0.7× length of gonocoxite; gonocoxal apodeme similar in length to gonocoxite and slightly shorter than ejaculatory apodeme; aedeagal tine curvature barely extending down past gonocoxites, apex of tines extending out slightly past parameral sheath; endoaedeagal process apically truncated and widened.

Female (Fig. 36): Similar to ♂ except for the following:

Head: Dichoptic; ommatidia of similar size except for those on upper quarter that are somewhat smaller; lateral edge of eye without any indentation, but also with apparent tubercle as in ♂; anterior ocellus similar in size to posterior pair; ocellar tubercle placed deeper in front of dorsal margin of eye compared to ♂; dorsal inner edge of eye separated from ocellar tubercle by paired silver-grey markings, appearing to extend down from vertex; upper occiput with some short dark setulae below black rectangular markings (♂ without); frons bluish-grey pruinose between lower half of eye down to antennal base, velvety-black from ocellar tubercle to lower half of eye when viewed anteriorly; frons running almost parallel down to antennal base; frons densely covered with dark setulae on velvety-black upper half, with dark setulae on lateral margins of lower half;



Figures 75–87. *Suragina* Walker spp. female genital fork and spermathecae, ventral view: **75** *S. agramma* (Bezzi) (ICIPE) **76** *S. bezzii* (Curran) (SAM-DIP-018403) **77** *S. bilobata* Muller, sp. nov. (CSCA) **78** *S. binominata* (Bequaert) (NMSA-DIP 158411) **79** *S. copelandi* Muller, sp. nov. paratype (BMSA(D)84686) **80** *S. freidbergi* Muller, sp. nov. paratype (BMSA(D)92158) **81** *S. liberiaensis* Muller, sp. nov. paratype (NMSA-DIP 158442) **82** *S. malavaensis* Muller, sp. nov. paratype (ICIPE) **83** *S. milloti* (Séguy) (CSCA) **84** *S. monogramma* (Bezzi) (BMSA(D)129988) **85** *S. mulanjeensis* Muller, sp. nov. paratype (NMSA-DIP 158392) **86** *S. semiobscura* Muller, sp. nov. paratype (ICIPE) **87** *S. zombaensis* Muller, sp. nov. paratype (NMSA-DIP 1584719). Scale bar (applicable to all illustrations): 0.1 mm.

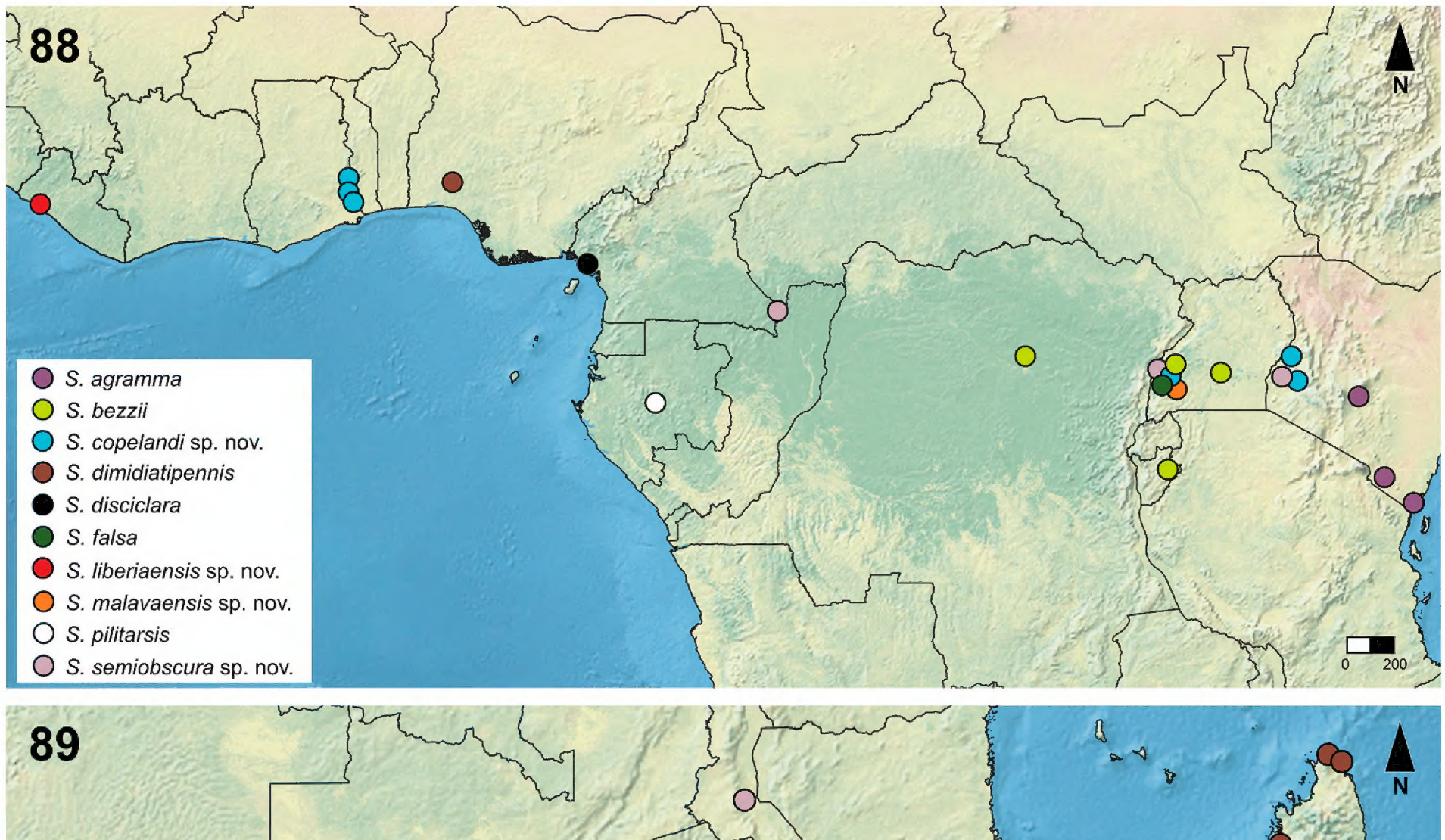
face separated anteriorly from clypeus by transverse suture, (less prominent than in ♂); antennal bases separated ca 0.6–0.8× width of scape, with slight longitudinal groove running between; scape 1.7× length of pedicel; 1st flagellomere ca 2× size of pedicel; proboscis ca same length as head height.

Thorax: Overall similar to ♂; scutum similar to that of ♂, except two dorsocentral vittae are bluish-grey pruinose compared to whitish-brown in ♂.

Legs: Similar to ♂ in colour; fore tarsal claws symmetrical; overall leg setation similar to ♂ except generally shorter and coxal setulae all pale except for dark setulae surrounding anterior apical point of hind coxa; hind tarsal segments 0.98–1.01× as long as hind tibia

Wing (Fig. 54): Similar to ♂.

Abdomen: Tergite 1 with a narrower, rectangular (♂ subtriangular) dark brown marking, more widely bluish-grey pruinose than in ♂, medially with a longitudinal suture; tergite 2 with similar dark longitudinal marking, but surrounded by bluish-grey pruinosity instead of brownish-yellow ground colour; tergites 3–5 dark brown, posterior margins with similar grey pruinose bands as in ♂; tergite 1 with



Figures 88, 89. Distribution of *Suragina* Walker spp. within the Afrotropical Region.

long pale setulae on pruinose surface, and short dark setulae on dark brown surfaces, tergites 2–5 with short pale setulae on posterior pruinose bands and short dark setulae on rest of surface; tergites 6 and 7 with short dark setulae; tergites 1–5 with long pale setulae on lateral margins, tergites 6 and 7 with dark setulae laterally; sternites all yellow, compared to sternites 5 and 6 dark brown in ♂.

Terminalia (Fig. 87): Cercus yellowish-brown with some greyish pruinosity, with pale setulae; genital fork with distal apodeme ending broadly truncated; median lobe with narrow emargination; paired apical lobes with somewhat

slender appearance, inner surface with clustered microtrichia at apex; arms gradually rounded; three ovate and sclerotised spermathecae.

Etymology. Named after the type locality, the Zomba Plateau, Malawi. Feminine adjective in the nominative singular case.

Distribution. Malawi.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

BSM confirms ethical clearance, number NMB ECC 2019/1, forming part of project 457 of the National Museum, Bloemfontein, South Africa.

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Author contributions

Muller conceptualised the project with inputs from Swart and Snyman. Muller identified, described and revised the species, and wrote the first draft of the manuscript. Snyman and Swart commented and made additions to the final draft.

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Data availability

All of the data that support the findings of this study are available in the main text.

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